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4 July, 1914.

FIELD NOTES.

San Antonio.

During the week ending June 20, the maximum temperature was 96.5, minimum temperature 73, and greatest daily range 23.

Sudan grass and sorghum for forage on the rotation plats were cut and raked, and the sudan grass was cocked.

All of the cotton on the rotation plats was cultivated and weeded.

Plowing of oat stubble was started, and the following rotation plats were plowed: A5-2, 5 & 10; A6-15; B4-19 and B5-7.

Some time was spent in weeding alleys and roads.

The milo in the thinning experiment is in flower and as the sorghum midge has appeared there will probably be some damage to this field.

Umatilla.

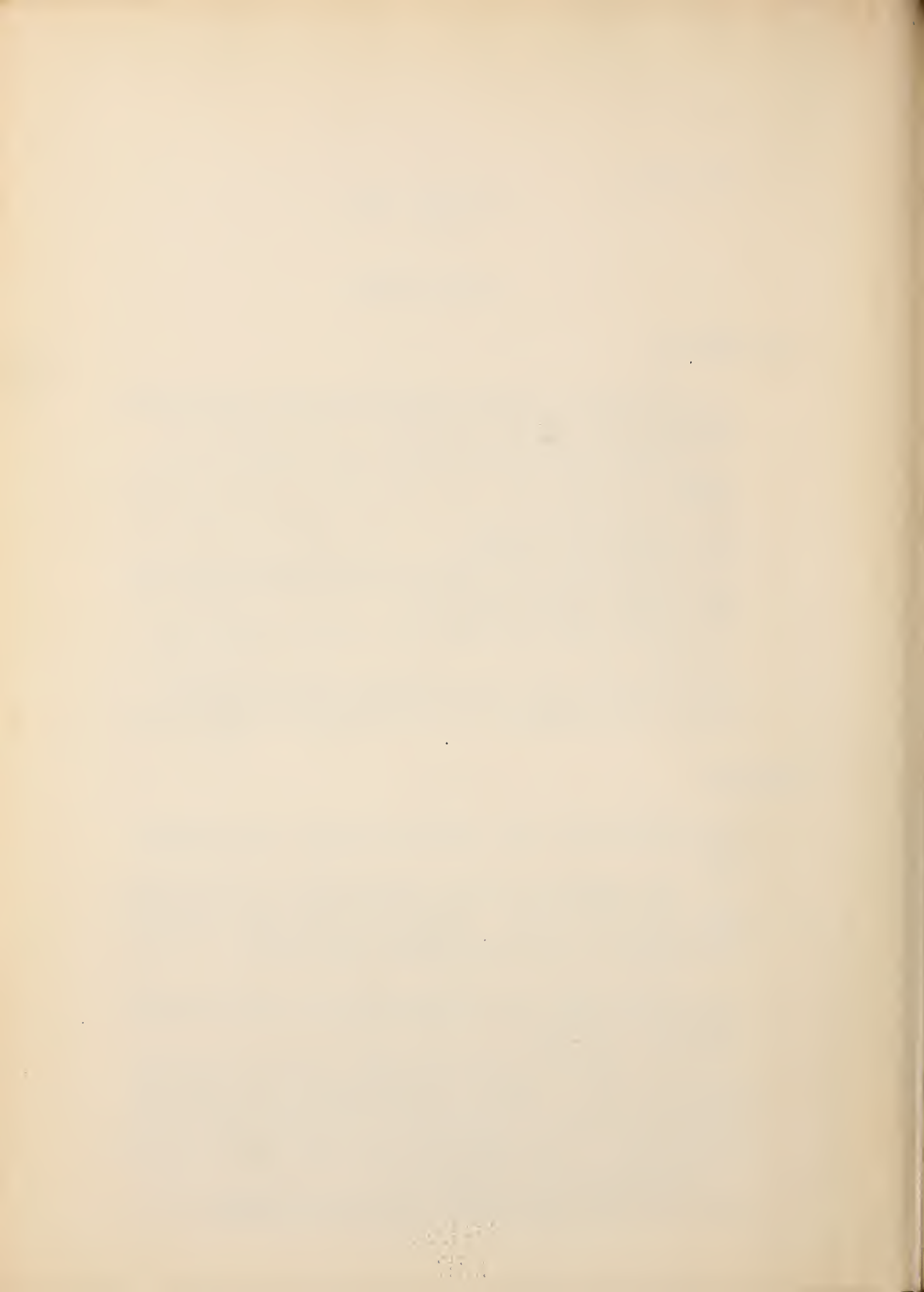
During the week ending June 6, the maximum temperature was 94, and the minimum temperature 35.

The general work of irrigating, cultivating, etc. was continued. Field C1 and a part of C2 was planted to corn and grain sorghums. A winter growth of rye was plowed under on D1.

During the week ending June 13, the maximum temperature was 85, minimum temperature 44, and rainfall .18 inch.

The trees in Field D5 and a part of C2 were pruned. The work of irrigating and cultivating was continued. Fields A2 and A3 were replanted owing to the poor germination of melon seed planted earlier. Two plats of soy beans were planted, one in A2 and the other in B2.

The potatoes in Field A4 have come up quite uniformly and are making a vigorous growth.





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## FIELD NOTES.

## Umatilla (continued).

During the week ending June 20, the maximum temperature was 100, and the minimum temperature 51.

An investigation of the bearing apple and pear orchards on the Stanfield Project and along the Umatilla River and Butter Creek was made and fire blight found to be present in a number of orchards. The trouble was first found in the young orchards about Stanfield which appear to have gotten their first infection through the blossoms this spring. The blight was also found in one orchard on the Umatilla Project, but as yet a thorough search has not been made.

A Livestock Association has been organized at Hermiston, and Mr. J. S. Damon, extension man in Animal Husbandry, appointed District Agent. Another slight outbreak of cholera has been temporarily checked by the treatment of a number of hogs.

## Huntley.

During the week ending June 20, the mowing of alfalfa in Fields A, B and M was completed.

To prevent the alfalfa looper from migrating to adjoining fields a head of water has been run around the alfalfa plats since the crop was cut. This method of control appears to be very effective and very little damage is done to other crops if water is kept running for a few days after the alfalfa is cut.

Thinning of sugar beets in Fields B and C was completed.

Irrigated Rotation Fields.

Considerable time was spent during the past week in combating the alfalfa looper. A head of



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## FIELD NOTES.

## Huntley (continued).

water was run around all the alfalfa plats to prevent the looper from crossing to adjoining plats. Most of the beets and part of the corn and flax were sprayed with arsenate of lead and paris green. Many of the beets were injured, but not seriously enough to kill any of the plants. A strip about five feet wide on the east side of flax in Plat KIII-16 was completely defoliated by the looper. They are disappearing very rapidly at present, due to a great extent perhaps to parasites, both bacterial and insect.

All corn plats and part of beets were cultivated. About one-third of the potato plats have been harrowed.

Alfalfa was harvested and weighed, and following yields obtained.

<u>Series</u>	<u>Plat</u>	<u>Tons per acre.</u>
II	6	1.71
III	1	2.18
III	6	1.74
III	7	2.10
III	12	1.90
IV	4	2.00
IV	10	2.06
IV	14	1.99
<u>IV</u>	<u>22</u>	<u>1.85</u>
Average.	..	<u>1.95</u>

The average yield for the first crop is approximately 18% lower than that of the first crop for last year. This decrease is undoubtedly due to the work of the alfalfa looper.

The four hogs in Rotation 67 were weighed for



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## FIELD NOTES.

## Umatilla (continued).

H. D. Newell, Project Engineer, and Mr. O'Donnell, of the Reclamation Commission, visited the farm during the week.

## Truckee-Carson.

During the week ending June 20, the maximum temperature was 96, and minimum temperature 44.

A surface drain was constructed along the south side of the "Y" Series parallel to the tiled drain. It was decided to construct this second ditch so that the surplus water could be drawn off without draining it into the tile system, from which it would be necessary to pump it.

The alfalfa varieties on H18 were cut. The yields obtained were as follows:

VARIETY	SERIES I	SERIES II	Total
Caucasian	?	45	---
Peruvian	75	70	145
Arabian	30	63	93
Grimm	70	98	168
Sand Lucerne	75	80	155
Turkestan	70	94	164
Montana	76	80	156
Canadian	65	95	160
Western Grown	77	95	172
Provence	81	90	171
Elche	17	35	52

## Belle Fourche.

During the week ending June 27 the maximum temperature was 98, minimum temperature 47, and precipitation .07 inch.

The alfalfa in Fields A and K was all hauled in and that in Fields O and P was cut and raked.





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## FIELD NOTES.

## Belle Fourche (continued).

On June 26 and 27 it was impossible to haul hay because of the high wind which prevailed.

The sugar beets were all hoed and cultivated and the potatoes sprayed. All the trees in both irrigated and dry land forestry were hoed and those in the dry land forestry cultivated. The alfalfa and grain in Field A was all irrigated.

Mr. Fritz Knorr visited the station on June 27.

The four hogs on alfalfa pasture were weighed the third time on June 22. The hogs gained only two pounds during the nine-day period, June 13 to June 22. This low gain followed a reduction in the corn ration from 3.6% to 2%, as mentioned in the Weekly Bulletin of June 27.

The following table shows the yields of the first crop of alfalfa in the time-of-cutting experiment started in 1913 on Field A; wheat was used as a nurse crop.

Plat No.	Time	Seeding	Yield per acre, Tons
		Method	
III-33	5/9/13	Without nurse crop(Early).....	1.36
34	6/5/13	Without nurse crop(Late).....	1.52
35	6/5/13	Rows 21 inches .....	1.08
36	5/9/13	Nurse crop cut for hay .....	1.18
37	5/9/13	Nurse crop cut for grain .....	1.16
38	5/9/13	Without nurse crop(Early).....	1.34
39	6/5/13	Without nurse crop(Late) .....	1.10
40	6/5/13	Rows 21 inches .....	1.14
41	5/9/13	Nurse crop cut for hay .....	.96
42	5/9/13	Nurse crop cut for grain .....	1.08
43	5/9/13	Without nurse crop(Early).....	1.26
44	6/5/13	Without nurse crop(Late).....	1.20
45	6/5/13	Rows 21 inches .....	.28





## FIELD NOTES.

Belle Fourche (continued).

Average yields, Tons per acre:

3 Plats without nurse crop, planted May 9 (Early).....	1.32
3 Plats without nurse crop, planted June 5 (Late).....	1.27
2 Plats; nurse crop cut for hay.....	1.07
2 Plats; nurse crop cut for grain.....	1.12
3 Plats; planted in rows 21 inches apart.....	0.83
** * **	
6 Plats without nurse crop.....	1.29
4 Plats with nurse crop.....	1.09

The following table shows the yields of the first crop, 1914, in the rate-of-seeding experiment started in 1913, in Field I.

Plat No.	Rate of seeding Lbs.	Yield per acre, Tons	Plants per acre in Dec., 1913.
1	2.5	1.2	102,000
2	3.0	1.0	73,000
3	4.5	1.3	97,000
4	6.0	1.2	114,000
5	8.0	1.16	139,000
6	10.0	1.0	135,000
7	11.5	.9	126,000
8	13.0	1.1	143,000
9	15.0	1.1	156,000
10	16.5	1.0	175,000
11	18.5	1.24	202,000
12	20.5	.86	210,000
13	22.5	.96	227,000
14	25.0	1.08	194,000
Average	.....	1.08	150,000

During the week ending June 20, the maximum temperature was 93, minimum temperature 50, and precipitation .25 inch.

The dry land alfalfa was cut and hauled in.



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## FIELD NOTES.

Belle Fourche (continued).

The following are the average yields per acre:

Field B:-

1 clover plat .....	1140 Lbs.
2 alfalfa plats .....	1310 "
9 border plats .....	1060 "

Field C:-Series II.

7 plats .....	1100 "
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Field C:-Series IV.

8 plats .....	1272 "
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Field G:-

5 plats.....	822 "
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The thinning of sugar beets and corn was completed and all the alfalfa in Field A was cut and shocked.

The grain and flax varieties, the grain and flax in the fall irrigation experiment, Field P, and the oats in Field O were irrigated.

Corn and potatoes in the irrigated rotations were cultivated and the sweet clover plats in dry land rotations were plowed and disced.

The early seeded plats of grain and alfalfa in the time and method-of-planting alfalfa and the flax and barley in the irrigated rotations were irrigated.

Moisture Content of Grain Plats in Fall  
Irrigation Experiment.

Soil samples for moisture determinations were taken from 12 grain plats in the fall irrigation experiment in Field P, on May 5. One 4-ft. core was taken on each plat. Two plats each of oats, barley and wheat were sampled. The plats in Series II and IV were irrigated in November, 1913, while those in Series I and III received no fall irrigation. The sampling was done and the moisture determinations were made by Mr. Mathews, and the table given below was compiled from his report on the results.

In the table below, the average moisture con-





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## FIELD NOTES.

Belle Fourche - Moisture Content of Grain  
Plats (continued).

tent of each foot-section is reported, and at the foot of the table the average moisture content to a depth of four feet is given. The results secured from the 12 plats show that the fall irrigated land contained an average of 5 percent more moisture than the land which was not fall irrigated. The fall irrigated land averaged higher in moisture content at all depths, with one slight exception, and the differences were greatest in the second foot.

Crop	Depth, ft.	Fall Irrigated			Not Fall Irrigated			Difference in favor of fall irrigation
		Series II	Series IV	Aver- age	Series I	Series III	Aver- age	
Oats	1	29.4	25.8	27.6	24.0	22.1	23.0	+ 4.6
Barley	1	29.5	29.9	29.7	27.5	24.6	26.0	+ 3.7
Wheat	1	28.5	29.4	28.9	26.0	27.1	26.5	+ 2.4
Average.....				28.7	....	....	25.1	+ 3.6
Oats	2	29.5	28.6	29.0	21.0	21.0	21.0	+ 8.0
Barley	2	29.8	29.9	29.8	20.5	22.2	21.3	+ 8.5
Wheat	2	29.3	28.0	28.6	19.1	19.7	19.4	+ 9.2
Average.....				29.1	....	....	20.5	+ 8.6
Oats	3	27.2	26.7	26.9	21.0	20.6	20.8	+ 6.1
Barley	3	28.4	24.6	26.5	22.6	20.6	21.6	+ 4.9
Wheat	3	26.8	26.3	26.5	19.5	21.7	20.6	+ 5.9
Average.....				26.6	....	....	21.0	+ 5.6
Oats	4	23.2	25.9	24.5	21.0	19.0	20.0	+ 4.5
Barley	4	21.0	16.6	18.8	21.2	19.3	20.2	- 1.4
Wheat	4	24.8	19.1	21.9	15.0	21.9	18.4	+ 3.5
Average.....				21.7	....	....	19.5	+ 2.2
Oats	1 to 4	27.3	26.7	27.0	21.7	20.7	21.2	+ 5.8
Barley	1 to 4	27.2	25.2	26.2	22.9	21.7	22.3	+ 3.9
Wheat	1 to 4	27.3	25.7	26.5	19.9	22.6	21.2	+ 5.3
Average.....				26.5	....	....	21.5	+ 5.0





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## FIELD NOTES.

## Scottsbluff.

During the week ending June 20 there was .56 inch precipitation. The rains interfered to some extent in putting up the hay and were of practically no benefit to the growing crops.

Practically all of the hay was put up during the week and is put in the stack in much better shape than had been expected would be possible.

All of the sugar beets were hoed and are now ready for cultivation.

The corn and potatoes are in serious need of cultivation, this work having been delayed by the haying.

A severe hail storm occurred during the week at the upper end of the Dutch Flats and the southwest portion of Mitchell Valley. The crops were damaged to a large extent and on some of the farms totally destroyed.

On June 19 a large delegation of commission men from the Omaha and St. Joseph stock yards visited the Experiment Station.

Progress of Hogging Experiments.

There is given below a summary of the results obtained in the hogging experiments during the 15-day period, June 4 to June 19. This summary has been compiled from a report submitted by Mr. Holden under date of June 23. In the table below, the ration is briefly indicated in the first column, together with the lot number. Each lot is pastured on a 1/4-acre plat of alfalfa, and except where otherwise indicated the plat is divided into two equal parts which are pastured alternately. The only exceptions to this method are lots 6 and 7. In the case of lot 6 the 1/4-acre is divided into three pastures, and in the case of lot 8 no division is made and the entire plat is pastured continuously. The hogs on the plat on rotation 65 are treated exactly the same as those in lot 5,



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## FIELD NOTES.

## Scottsbluff-Hogging Experiments (continued).

and the results with these two lots should check each other.

In the second column of the table the number of hogs in each lot is indicated. This number varies because of the varying size of the hogs, and because of the different methods used. For example, lot 6 contains 6 hogs, while lot 7, which pastures the plat continuously, contains only 5 hogs. These adjustments were made in order to pasture the alfalfa as nearly as possible to its maximum carrying capacity. In the table given below, the figures in the column headed "% Daily Gain" are those which are most nearly comparable.

Lot No.	No. of hogs	Total weight, Lbs.		Gain		Pounds pork per acre per day.
		June 19	June 4	Total, Lbs.	% Daily	
Rotation 65						
(2% corn)	7	797	723	74	.65	19.72
5 (2% corn)	5	682	609	73	.78	19.44
1 (No grain)	4	430	440	-10	Loss	-.6
2 (1% corn)	4	542	521	21	.23	5.60
3 (3% corn)	6	804	704	100	.86	26.64
4 (2% barley)	5	692	646	46	.47	12.24
6 (3 pastures: 2" corn)	6	674	604	70	.70	18.64
7 (1 pasture; 2% corn)	5	642	600	42	.47	11.20

The results reported above simply suggest the progress the different lots of hogs are making as indicated by the gains made during the 15-day period in question. Some of the points to be noted from the table are:

(1) That the hogs which are given no grain sustained a slight loss during the period.

(2) That a marked increase in gain resulted from increasing the corn ration, as is indicated by the percentage daily gains of the hogs receiving 1%, 2%, and





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FIELD NOTES.

Scottsbluff-Hogging Experiments (continued).

3% corn, respectively.

(3) That the hogs which are fed 2% barley (lot 4) and those which are fed 2% corn, and for which the pasture is not divided (lot 7) made relatively low gains.

(4) That dividing the plat into 3 pastures did not increase the gains.

PAY ROLLS.

There has been considerable delay recently in the receipt of field station pay rolls. Up to June 27 but three rolls had been received. This necessitates the making of two rolls for the division or holding up the early rolls until the receipt of the delayed ones.

It is therefore requested that farm superintendents make an effort to have their station rolls in this office by the 25th of the month, so that there may be no unnecessary delay in receipt of checks by the employees.



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## FIELD NOTES.

## San Antonio.

During the week ending June 27 the maximum temperature was 96, minimum temperature 67.5, and greatest daily range 28.

There has been no precipitation for about four weeks and the ground is drying out rapidly. Crops on the Farm are still in good condition; corn is beginning to dry up from maturity, milo is ripening, and is making good growth.

Plowing of oat stubble was continued throughout the week. Plats A5-14 and A5-18 were plowed and Plat A6-15 was plowed and subsoiled. The oat stubble on A3 and D3 was also plowed.

The sorghum in the cultivation experiment on B4 was cut and raked. The sorghum on Plat A4-10 was also cut.

The garden on D3 was furrowed and irrigated. Trees, shrubs, and palms on the grounds were irrigated.

Some hay was hauled in and stacked near the barn.

A trip was made to the Medina Dam on Tuesday. The land to be irrigated with water stored by this dam was also visited. About two thousand acres of land is being irrigated the present season, about one thousand of which has been planted to pecan and fruit trees. Corn is being grown between the trees.

The country passed through on the trip is looking very good. Crops are all making good growth and the prospects are good for an unusually heavy corn crop, and also for good yields of forage crops. Cotton looks well although it is still too early to predict much as to its outcome.

Mr. Hastings left San Antonio on the 24th of June for Laredo and Austwell, Texas.

## Yuma.

During the week ending June 20 the maximum temperature was 106, minimum temperature 56, and greatest daily range 45.

A cultivation was given cotton, grain sorghum





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## FIELD NOTES.

Yuma (continued).

and cowpeas experiments, B-Orchard, grape and berry plantings, and also nurseries. Weed growth is rapid at this season and has necessitated the employment of two men regularly all week in hoeing orchards, nurseries, and along borders and ditches.

The first cutting of Sudan grass was harvested from Plats A-3, C-23 and C25. The hay crop is heavy, the growth being vigorous but affected by spottedness of soil. The legume mixture with soy beans is seemingly a better combination than Sudan grass and Groit cowpeas. Yields will be reported later on air dry calculations.

The volunteered Egyptian cotton planting on D-19 was plowed under as Durango cotton is beginning to flower. The Egyptian plants had been flowering for six weeks. This land will be planted to June planting variety block of cowpeas.

A-15<sub>5</sub> was manured and plowed in preparation to seeding to date nurseries. Deglet Noor variety will be planted here, including a small quantity of pedigreed seed. Dates on A-20 were manured in furrows.

The following trees were received from the Armstrong Nurseries, at Ontario, Cal., and planted in orchard form on B-23: 14 olives, 2 pomelos, 6 lemons, 12 oranges, 2 tangerines, and 2 kumquats. The citrus trees were wrapped with burlap as a protection from sun scald.

Four hundred and one trees of SPI # 29391, Menakher date seedlings, were transplanted from nursery A-14<sub>3</sub> to Roads 9 and 10.

Eucalyptus along farm edge roads were summer pruned. Melons and cantaloupes in variety tests are ripening in abundance, also, tomatoes and squashes.

Twenty-eight acres were irrigated on June 16. The Colorado River has been falling gradually during the week, although little relief is yet felt in seeped areas along the levee.



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FIELD NOTES.

Yuma (continued).

A contract has been let for the construction of a bridge across the Colorado River at Yuma, Arizona, to be completed within 200 working days.

Mr. Blair recently visited the Lower Yuma Valley. He found that the alfalfa seed crop promises to be uniformly light, but that the hay crop is in excellent condition. Further comments by Mr. Blair are given below:

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"A few farmers have grown beans this season, both pink and frijoles, which are now being harvested. I saw one planting of a combination of beans and cotton, cotton having been planted between bean rows, and now at bean pulling time the cotton is well advanced and should produce a good crop.

Considerable milo maize is being planted on ground prepared for same.

The latest estimates of cotton plantings show 900 acres likely to come through to ginning in the Somerton district, and 800 acres in the Upper Yuma Valley, to be ginned at Yuma. The cotton near Somerton looks best at this season. In the Upper Yuma Valley some trouble has been experienced in securing good stands. A cooperative 4-stand gin is to be erected at Somerton; those people believing a railroad spur will be extended there from the levee road. Rails are now laid to a distance of about 20 miles from Yuma on the levee, and are now as far south as Somerton".

During the week ending June 27 the maximum temperature was 107, minimum temperature 55, and greatest daily range 45.

Leveling on new lands B-7 and 8 was completed with the exception of the bordering.

The first cutting of Sudan grass was made from land A-4 which is a rate-of-seeding test. The last planting in time-of-seeding test of Sudan grass was made on C-24. Alfalfa was harvested from C-29. Cot-





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## FIELD NOTES.

Yuma (continued).

ton plat D-12 was thinned. The volunteer cotton on A-5 was plowed under.

The date nurseries on A-14 and various other nursery blocks was completed. Pruning of palms in A-date orchard was completed. One hundred SPI #29391 Menakher seedling dates were transplanted from nursery A-14<sub>3</sub> to orchard land A-25.

Two hundred and ten Eucalyptus rudis plants were transplanted from pots in plant shade to farm road plantings along roads 9 and 10. Twenty-seven acres were irrigated on June 23.

Messrs. Blair and Ratliffe spent June 26 and 27 in the Lower Yuma Valley observing crop conditions, especially the advancement of cotton. Nearly all of the cotton has been thinned, and the earlier plantings have set many squares while some are flowering. The alfalfa seed crop will be generally light throughout the Project.

Huntley.

During the week ending June 27 hauling of grass and clover hay and the first crop of alfalfa was completed. The hay was all in good condition, having been damaged but little by rain. Following are the yields obtained.

Crop	Plat No.	Pounds per plat	Tons per acre
Bromus, Italian rye, Alfalfa, Alsike, Red Clover.....	AII-3	1150	2.30
Orchard grass, Italian rye, Slender wheat, Blue grass, Alsike, Red Clover, White Clover.	AII-5	1030	2.06
Timothy, Alfalfa.....	AII-6	1045	2.09
Timothy, Red Clover.....	AII-7	855	1.71
Red Clover.....	AII-8	820	1.64
Mixture 3.....	AII-10	975	1.95
Orchard Grass.....	AII-12b	150	1.50
Brome Grass.....	AII-13a	140	1.40
Meadow Fescue .....	AII-13b	135	1.35
Tall Fescue.....	AII-11c	165	1.65
Perennial Rye Grass.....	AII-12d	40	.40
Tall Oat Grass.....	AII-13c	180	1.80
Orchard Grass.....	AII-13d	125	1.25





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## FIELD NOTES.

Huntley (continued).

Yields of alfalfa - Fields AIII, AIV  
and MI.

<u>Plat No.</u>	<u>Pounds per plat</u>	<u>Tons per acre.</u>
AIII-1	890	1.78
2	832	1.66
3	830	1.66
4	685	1.37
5	750	1.50
6	840	1.68
7	810	1.62
8	725	1.45
9	790	1.58
10	985	1.97
11	1005	2.01
12	840	1.68
13	1005	2.01
AIV-1	940	1.88
4a	370	1.48
5	870	1.74
9	940	1.88
MI 12a	400	1.60
MI-11	460	.92
15	460	1.38

The two plats in Field MI are on the alkaline soil at Worden. There were planted in 1913 on land which had received treatment in 1911 and 1912.

The alfalfa looper which has damaged the first crop of alfalfa somewhat has almost entirely disappeared and unless a second brood comes on later it is likely that no serious damage will result to crops other than the first cutting of alfalfa and garden truck. The sugar beet webworm is hatching in large numbers in many of the beet fields and spraying will



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## FIELD NOTES.

Huntley (continued).

be necessary to hold them in check.

Following are the water levels in the Worden wells on June 15.

<u>Well No.</u>	<u>Depth to water, ft.</u>	<u>Difference since June 1</u>
A-1	2.88	.55 fall
2	3.04	.57 "
B-1	3.01	.26 "
2	2.97	.37 "

Irrigated Rotation Field.

All alfalfa and most of the wheat, oats and flax plats have been irrigated. Flax is blooming.

Beets were cultivated. All alfalfa plats were disked and harrowed immediately after crop was removed. Potatoes were harrowed for the second time.

The Colorado potato beetle is beginning to work on the potatoes. This will necessitate spraying within a few days.

A trip was made over the Project on June 22 in search of spring pigs to replace the four fall pigs in rotation 67. The prospects for this Project as a pork producing center are good. On practically every unit hogs are to be found ranging from a few to many. The hogs are all thrifty and of a good grade, but no pure breds. It was with difficulty that any farmers were found who cared to sell any of their spring pigs, especially such pigs as would be desirable for experimental work.

The four pigs in rotation 67 were weighed for



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## FIELD NOTES.

Huntley (continued).

the sixth period of ten days. Results are as follows:

Individual Weights.

No.	Weight		Daily gain for 10 days	Total gain for 10 days	Total gain for 60 days
	June 15	June 25			
1	144.5	155.0	1.05	10.5	57.0
2	155.0	168.5	1.35	13.5	58.5
3	171.0	182.0	1.10	11.0	62.0
4	164.0	175.0	1.10	11.0	55.0
Total	634.5	680.5	4.60	46.0	232.5
Average	.....	.....	1.15	11.5	58.1

Days	No. of hogs	Initial weight	% Daily gain	Total gain per day, Lbs.	Net Daily returns per acre.	Pounds per acre per day.	Amount grain fed, Lbs.
*60	4	448	.70	3.87	\$.64	15.48	670
**10	4	634.5	.70	4.6	.77	18.4	130

\* April 27 - June 25, inclusive.

\*\* June 15 - June 25, inclusive.

Scottsbluff.

During the week ending Jun 27 the work at the Experiment Farm progressed in good order, most of the time being spent in irrigating and cutting out weeds.

On the 26th of June a severe wind storm visited the Project. The anemometer, standing low and protected, registered 46 miles per hour. Nearly all of the crops have been damaged to a great extent. It is reported by the Sugar Factory that a large area of sugar beets have been destroyed. In the immediate neighborhood of the Experiment Farm in one beet field of 60 acres only 5 acres of beets remained. Many





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## FIELD NOTES.

## Scottsbluff (continued).

of the renters are intending to give up the lease on land rented. The grain crops have been damaged to quite an extent especially along the north and west sides of the fields. The fields that were dry suffered more than the fields that were well irrigated.

## Truckee-Carson.

During the week ending June 27 the maximum temperature was 91, and the minimum temperature 34.

The amount of butter fat purchased by the Churchill Creamery in May was 16,414 pounds at an average price of 24 cents.

The following fields were irrigated: F1 to 8 inclusive; G1 to 5, inclusive; H1,2,4,5,6,7,8,9,10,11,15,16,17,18,19,20,24,25,26,29; E1 to 8, inclusive, and D1 to 14, inclusive.

The Russian oleaster hedge was trimmed and lawns mowed. Foxtail was again removed from fields and ditches on the Farm.

Mr. Headley made a trip to Stillwater on June 20 to inspect the grain varieties grown by Messrs. L. W. Langford and W. A. VanVoorhis. The wheat and oat varieties are heading out. They look good but the field in which they were sown is badly infested with mustard. The barley varieties grown by Mr. Van Voorhis were seeded on spotted soil and the results will not be satisfactory.

Following are results of ten borings of soil from Plat Y12, the figures being the averages ob-



11 July, 1914.

## FIELD NOTES.

Truckee-Carson (continued).

tained from the three borings.

Depth	Total salts	Na <sub>2</sub> CO <sub>3</sub>	NaHCO <sub>3</sub>	NaCl	Na <sub>2</sub> SO <sub>4</sub>
1st foot	.2360	.0108	.0709	.0146	.0
2nd foot	.2864	.0348	.0435	.0280	.0865
3rd foot	<u>.2584</u>	<u>.0320</u>	<u>.0280</u>	<u>.0240</u>	<u>.0740</u>
Three feet	.2460	.0252	.0475	.0223	.0518

PER DIEM ALLOWANCES  
(In lieu of subsistence).

The following memorandum, dated July 1, 1914, has been issued from the office of the Chief of the Bureau.

"The following limitation with respect to per diem allowances in lieu of subsistence is contained in the Sundry Civil Appropriation Bill which has passed the House and is now before the Senate:

'Sec. 13. That the heads of executive departments and other Government establishments are authorized to prescribe per diem rates of allowances not exceeding \$4 in lieu of subsistence to persons engaged in field work or traveling on official business outside of the District of Columbia and away from their designated posts of duty when not otherwise fixed by law.

For the fiscal year nineteen hundred and sixteen and annually thereafter estimates of appropriation from which per diem allowances are to be paid shall specifically state the rates of such allowances.'





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## Per Diem Allowances (continued).

In anticipation of the passage by Congress of this limitation, all traveling men whose letters of authorization prescribe a per diem rate higher than \$4 in such cities as have unusually high hotel rates, should be advised of the proposed limitation at once in order that they may be prepared to obtain subvouchers for lodging, etc. in these cities upon the passage of the limitation, and it will then be necessary to amend their letters of authorization so as to provide that actual subsistence expenses not to exceed \$5 per day be allowed in such cities.

Very truly yours  
(Signed) W. A. Taylor  
Chief of Bureau."



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## FIELD NOTES.

## Scottsbluff.

During the week ending July 4, the weather was extremely dry and warm. Several weeks before the showers ceased and it was feared that a large number of farmers would suffer in having their crops dry up to a large extent, for the reason that the showers had kept the plants apparently in a thriving condition. Since the top soil was moist but very little irrigating was done. As soon as the rains stopped, sufficient water was not available to go over all the crops as rapidly as they required water, and, as a result, there are a number of badly burnt fields on the Project.

Irrigating of the small grains and alfalfa was completed, and irrigation of the potatoes in the irrigation experiment was begun.

The winter wheat on the irrigated land has been cut. Some of the barley varieties under irrigation are ripening very rapidly and may have to be cut by the middle of the following week.

The wind storm reported during the week ending June 27 did considerably more damage than was thought at first. In the alfalfa seed crop area west of the Experiment Farm the prospect of a seed crop is very poor, the wind having blown and torn off most of the flowers, leaving the tops of the alfalfa plants as bare as in winter. Unless there is considerable rain soon this alfalfa will not recover.

During the week ending July 11, the weather continued extremely hot and dry, and many of the fields on the Project suffered for the want of moisture. It is impossible for the Reclamation Service to deliver a continuous run of water. From early in the spring until the middle of June frequent showers visited the Project. These served to keep all of the crops in fairly good growing condition, and furnished a large amount of surplus moisture. The tendency of the roots was to feed near the surface rather than to make the downward





18 July, 1914.

## FIELD NOTES.

## Scottsbluff (continued).

growth. As soon as it became dry the surface moisture exhausted and the plants began to suffer although there was an apparent abundance of water in the subsoil at the depth of eight inches. During the period of light showers very little irrigation was done by the farmers, all hoping that the showers would prove sufficient to carry the crops through.

All sugar beets on the Farm were hoed, cleaned out, and put in shape for irrigation. The irrigating of the sugar beets will begin July 13.

All potato varieties have been irrigated, and irrigation of the corn was started July 11.

Six plats of oats on the dry land were cut. One plat was cut with the mower, the straw being too short to cut with the binder. The extremely warm wind during the week ending July 4 removed all prospects for a large crop on the dry land.

Six varieties of barley were cut July 11, and the others will be in shape for harvest next week.

It is hoped to begin threshing as soon as the second cutting of alfalfa hay is completed.

Prof. Olin, Agricultural Commissioner of the D&RG Railroad visited the station during the week.

Progress of the Dairy Work  
in June.

On June 7 four cows were purchased. These cows were not the best dairy cows available, nor the poorest, but were the average "farmer's cows".

Cow No. 1 (Maid), a black cow with white face and a few white markings, is from a shorthorn dam and Holstein sire. The shorthorn dam had some Hereford blood in her, but the owner could not say how much. This cow weighed 744 pounds at the time of purchase.

Cow No. 2 (Rose), weighed 836 pounds at the time of purchase, is three years old, and the first





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## Scottsbluff-Dairy Work (continued).

calf out of No. 1 (Maid). The sire of this cow was a Holstein, although her markings and those of her dam are almost identical.

Cow No. 3 (Stella) weighed 770 pounds at the time of purchase, and is out of a shorthorn cow and Redpole bull. This cow shows all the characteristics of the Redpole.

Cow No. 4 (Wonder) weighed 746 pounds at the time of purchase. She is part Jersey on the dam's side and Holstein on the sire's side.

The amount of pasture available during the month of June was one field of  $3/4$  acre and four  $1/4$  acre plats, making a total of  $1-3/4$  acres. This pasture became rather course before the cows were turned in, and it was found necessary to mow nearly all of these plats. This, of course, cut down the pasture to some extent.

It was found necessary to feed these cows a small amount of hay at nights as they did not seem to get sufficient pasture, but it is now hoped to keep the grass in a growing condition, and perhaps obtain enough feed for the animals. The amount of hay eaten from June 8 to June 13 was about 600 pounds.

The results stated below cover the period from June 8 to 30, inclusive, and are computed on the basis of the following values: Land rental, \$7 per acre for 8 months (estimated expense per cow-\$3825); and price of hay, \$6 per ton (cost of hay fed each cow-.45). The estimated value of butter fat is 20 cents per pound. (a)

Cow No.	Milk, pounds		Butter fat		
	June 8-30	Av. per day	%	Total lbs.	Value
No. 1 (Maid)	520	22.6	3.9	20.28	\$4.05
No. 2 (Rose)	421	18.3	4.1	17.29	3.45
No. 3 (Stella)	448	19.4	4.2	18.8	3.76
No. 4 (Wonder)	531.7	23.1	3.8	20.2	4.04
					\$15.30

(a) The estimate of the expense of pasture (\$7 per acre) is the average rental cost of irrigated land, which is usually based on a term of eight months, or during the growing season. The price of hay per ton is the prevailing price at the present time. The price of butter fat (20¢ per pound) is that paid on



18 July, 1914.

## Scottsbluff-Dairy Work (continued).

the Project, regarding which Mr. Knorr writes "Butter fat is very low. We cannot account for the extremely low price for butter-fat paid at this point, when we notice the better prices paid by the creameries in other towns".

Brown Root of Sugar Beets.

In a recent letter Mr. Knorr comments as follows regarding the sugar beet plants which were transplanted May 27, to determine the effect of "Brown root", a difficulty which was mentioned in the Weekly Bulletin of June 6, page 200:

"In reference to your letter regarding the sugar beets that we planted in the box: We planted twenty plants each of the normal and the affected plants. About a week after the planting one of the normal plants died for some unknown cause. All the others came through in good shape, leaving us until July 5, twenty plants with the brown root and nineteen of the normal plants.

On July 5 we took the plants out of the box and examined the roots and found little or no difference in the plants except that we thought that on six of the brown rooted plants there was considerable more growth of root-hair, a condition which you know doubt have observed on some beets at harvest time.

I am sorry that we did not plant these plants in the garden and carry them through the season. The result at that time would have been more interesting and of greater value than the box planting. I wish you would keep this matter in mind next year and make such a planting and carry the plants through the season".

## Umatilla.

During the week ending July 4, the maximum temperature was 102, minimum temperature 48.

The second crop of alfalfa was harvested in fields Cld, Cle, Blb and Al.

Apple trees were sprayed to diminish the injury re-







18 July, 1914.

## FIELD NOTES.

## Umatilla (continued).

sulting from the attack of grasshoppers. . Although not entirely effective, the bordeaux, summer strength, checks the ravages of these insects considerably. They are not bothering peach and apricot trees to any detrimental extent.

Irrigation and cultivation of the various fields has progressed as usual, an application of water be made in the orchard and alfalfa plats once in twelve days and the smaller truck crops once each week.

## Truckee-Carson.

During the week ending July 4, the maximum temperature was 97; minimum temperature, 52.

The work of leveling the west end of Field C and tiling Plat Y1 was continued.

Plat B1, which had been seeded to feterita, had such a poor stand that it was plowed up and seeded to hog-millet.

Fields A1, 2, 3, 4, 5; B1 and 2; and all of D were irrigated.

## Belle Fourche.

During the week ending July 4, the maximum temperature was 93, minimum temperature 46, and precipitation .23 inch.

The alfalfa in field K was hauled in and yielded at the rate of 1.32 tons per acre, total yield of the field being 8.62 tons. The alfalfa on fields O and P was hauled in, and yielded 13.21 tons, or at the rate of 1.03 tons per acre.

The alfalfa in fields O, P and K was irrigated; also, oats in fields I and K, the grain and flax in the fall irrigation experiment, Field P, the flax in the irrigated rotations, and the barley on AII-25.

All the corn and potatoes in the irrigated rotations and fall irrigation experiment were furrowed for irriga-



18 July, 1914.

## FIELD NOTES.

## Belle Fourche (continued).

tion. All the beets in the irrigated rotations and in the fall irrigation experiment were cultivated.

Orchard and small fruits were hoed and irrigated.

The hogs pastured in rotation 65 were weighed, and the results given in the following table. Eight pigs weighing 51 pounds each were purchased, and turned in to continue the experiment. The hogs were weighed last on July 2.

Period pastured	Days	No. of hogs	Initial weight	Total gain per day, Lbs.	Pounds per acre per day.	Amount grain fed, Lbs.	% Daily gain
5/20-6/1	12	6	620	7	28	230	1.06
6/1-6/13	12	4	462	6	23.2	200	1.17
6/13-6/22	9	4	532	0	0	95.4	0
6/22-7/2	10	4	534	1.2	4.8	106.8	.21

## Huntley.

During the week ending July 4, the men were employed in repairing ditches, weeding, and irrigating alfalfa. Alfalfa stubble in fields A and B was disked and harrowed to kill alfalfa loopers.

Mr. Morgan left on the 4th for the Hays field meeting.

Irrigated Rotation Field.

Potato, corn and beet plats were cultivated. Irrigation of grain plats was completed. Beets were hoed for the first time. Corn has been suckered. The remainder of the week was devoted to hoeing weeds and





Huntley (continued).

work on the irrigation ditches.

A comparison of second and third year alfalfa with regards to height and yields is made in the following table.

2nd year			3rd year		
Plat	Height, inches	Yield per acre, Tons	Plat	Height, inches	Yield per acre, Tons
KII-6	27	1.71	KIII-1	27	2.18
III-6	29	1.74	III-7	28	2.10
III-12	28	1.90	IV-22		
IV-4	29	2.00	(CC)	21	1.85
IV-10	27	2.06			
IV-14	23	1.99			
Average	27.17	1.90		25.33	2.04

(A similar table will appear in the Bulletin at a later date comparing heights and yields of second cutting alfalfa).

#### INFORMATION CONCERNING FIELD MEN.

In order to comply with a request of the Chief Clerk of this Bureau for certain information concerning the scientific employees of this office, forms were transmitted to the field men under date of June 22, to be filled in and returned promptly to this office. It has been noted that several of these memoranda have not been returned, and it is urged that they be given prompt attention, and forwarded to this office immediately.





25 July, 1914.

## FIELD NOTES.

## Truckee-Carson.

During the week ending July 11 the maximum temperature was 94, and minimum temperature 51.

Messrs. Curtis and Headley made a trip to Stillwater on the 8th of July to inspect the grain varieties growing on Langford's ranch and the Indian School farm. The wheat and oat varieties on the farm of L. W. Langford are all headed out and there is a very uniform stand over the field. The barley varieties on the Indian School farm are poor, owing to the spotted character of the soil. Some of the barley varieties were beginning to ripen.

The work of laying 4" tile in certain plats of the "Y" series was continued throughout the week. The average depth of this tile is close to 5 feet below the surface of the plats.

The trees in Field C and the potatoes in H2 were cultivated. Plat Y18, to which sulphuric acid was applied during the previous week, was plowed.

Tomato wilt (*Fusarium lycopersici*) is causing the death of a large percent of the tomato plants over the Project. This disease was prevalent in 1910, but has done little damage since that time until this year.

## San Antonio.

During the week ending July 4, the maximum temperature was 98.5, minimum temperature 65, and greatest daily range 33.

Plowing of oat stubble on D3 was completed and plowing of pea stubble on B3 and of oat stubble on C3 was started. Johnson grass and weeds were cut out of the corn plats.



25 July, 1914.

## FIELD NOTES.

San Antonio (continued).

Sudan grass from plats B4-16 and A6-17 was hauled in and weighed. The yield per acre is given below:

B4-16.....3.27 tons.

A6-17.....4.28 "

A part of the Johnson grass from C6 was hauled in and stacked.

Soil samples were taken in the cotton plats and in the cultivation experiment on B4.

The orchard on E4 was cultivated.

The milo on the rotation plats is maturing rapidly and is ready for harvesting.

Sorghum on plats A4-12 and 16 was cut.

Mr. Hastings returned on June 30 from a six days' trip in the southern part of Texas. One day was spent at Laredo, and the remainder in the Tivoli and Austwell section.

During the week ending July 11, the maximum temperature was 103.5, minimum temperature 67, and greatest daily range 33.5.

All of the milo on the rotation plats was cut with the corn binder on July 7. For the most part, the milo ripened uniformly this year. There was less tillering than usual, and the only thing which caused some of the plants to be late in maturing was the necessity of replanting.

Cultivation of all of the orchards was completed and all orchards were weeded. Cotton on AB8 and D4 was weeded. The cotton on D3 was irrigated for the first time and partly cultivated. Fallow plats in the rotation experiments were weeded. Alleys were also weeded. The farm roads were disked and graded.

Hauling of hay was continued whenever time was available for such work.

A. B. Conner, assistant director of the Texas Experiment Station, spent the 6th on the Farm.

On the 5th, Messrs. Hastings and Connor visited Boerne, Sisterdale, and vicinity, inspecting Sudan grass fields. About 100 acres are being grown for seed at that station.





25 July, 1914.

## FIELD NOTES.

Umatilla:

The work of the Experiment Station has progressed without interruption.

The grasshopper and rabbit pests are continuing their injury to crops and are doing extensive damage to orchards and alfalfa fields. Local areas in badly infested fields. A maggot has been found working in the grasshoppers, and as high as 36 dead adult insects have been found upon one square foot of ground. The work of this parasite is not general and as yet has made but little headway against the pest. The settlers are taking steps to unite in a general campaign against the rabbits.

During the week ending July 11, the maximum temperature was 96 deg., the minimum temperature, 54 degrees, and the precipitation .03 degrees.

Hogging Experiments.

Mr. Allen has reported on the weights of four hogs pastured on alfalfa. The average weight of the four hogs was 84.5 pounds on March 28. They were pastured on one-quarter acre of alfalfa, in rotation on one-eighth acre plats, changing from one to the other every ten days. During one week in April, while the alfalfa was growing very slowly, the hogs were short of forage, and some additional hay was mowed and thrown over to them. As a check on the value of pasture from this plat an adjacent quarter-acre is devoted to the production of hay for the purpose of determining the yields derived.

The weight of the hogs are as follows:

Dates	Days	No. of hogs	Weights		Gain		Pounds
			Initial	Final	Total	% Daily	per acre
3/28-4/24	27	4	338	450	112	1.07	16.4
4/24-5/27	33	4	450	548	98	.59	12.0
5/27-6/27	31	4	548	642	94	.51	12.0
3/28-6/27	91	4	338	642	304	.70	13.2

The hogs were given 2 pounds of rolled barley per 100 pounds live weight each day since the experiment began.



25 July, 1914.

## FIELD NOTES.

Huntley.

During the week ending July 11, the weather was unusually warm and dry, and the crops made excellent growth.

Irrigation of alfalfa and grasses in fields A and B was completed, and also the grain in fields B and C.

The prospects for heavy yields of grain and the second crop of alfalfa are very good. So far there have been no indications of the appearance of the alfalfa looper to damage the second crop.

All of the spring grain on the Worden Tract was irrigated. The crops generally on this Tract are showing the bad effect of the high water table during the past year. There is, however, quite a marked difference in the appearance of the crop on old land in favor of the old land.

The stand of alfalfa on field MII is fair and is making fairly good growth. As a result of the overflowing of the water from the open drain that borders on this field some time ago, the stand of alfalfa on about two acres adjoining the ditch has been somewhat damaged.

Mr. J. R. Parker, of the Entomology Department of the Montana State College, visited the Farm on the 11th.

Potatoes were sprayed. From all indications there will be an abundance of the Colorado beetles. Beets were furrowed for irrigation. Several of the grain plats are badly infested with wild oats, especially plats KV-17 and 18, and considerable time has been spent at roguing these plats. Some work was done on the irrigation system.

The four fall pigs in rotation 67 were replaced by nine spring pigs. The small pigs were obtained from Mr. Howard, whose ranch is about one mile north of the station. They are of a good grade duroc jersey, and were farrowed the early part of April. Six are boars and three are gelts. Their total weight when placed on pasture, July 7, was 367.5 lbs; average weight, 40.8 lbs. The pigs, while on the





25 July 1914.

## FIELD NOTES.

Huntley (continued).

Howard Ranch, were run on alfalfa pasture of fair quality and this was supplemented with about a  $1\frac{1}{2}\%$  ration of soaked wheat. They were weaned just before being brought to the station.

The results of the last weighing of the fall pigs are as follows:

Final Weight, 712 pounds.

Days	No. of hogs	Initial weight	% Daily gain	Total gain per day, lbs.	Net daily returns per acre	Lbs. pork per acre per day	Amt. grain fed
* 71	4	448.	.65	3.71	.58	14.84	815#
**11	4	680.5	.40	2.86	.30	11.44	145#

\* April 27 to July 6, inclusive.

\*\* June 25 to July 6, inclusive.

Yuma:

During the week ending July 4th, the maximum temperature recorded was 112 deg., minimum, 67 deg. and greatest daily range, 38 deg.

Grain sorghums were planted on C-37 to 40. Fig orchard C-6 to 17 was seeded to Whippoorwill cowpeas at the rate of 40 pounds per acre. Date orchard block A-16 to 21 was prepared for planting cowpeas also. Tepary beans were planted to plot C-24 in rows ranging from 7 to 18 and 36 inches apart. A-155 was seeded to Deglet Noor dates in nursery rows.

The first plots of the third cutting of alfalfa "Time-of-cutting" experiments was harvested from E-Series.

Pecans on F-1, hemp C-20 to 22, various nurseries and ornamental plantings on grounds were hoed. Hoeing on irrigation ditches was also continued.

Fourteen varieties of flax received through the Office of Cereal Investigations planted March 27, were all matured by June 19th. Various foreign strains were included in this test. None of these





25 July 1914.

## FIELD NOTES.

Yuma (continued).

selections seemed promising, but they will be planted again for a fall crop. The hot weather seemed to stop all growth and hasten maturity of the flax.

During the week ending July 11, temperatures were recorded as follows: Maximum, 109 deg., minimum, 60 deg., greatest daily range, 27 deg. Twenty one acres were irrigated this week.

Miscellaneous cultivation followed the irrigation, also the hoeing of various crops and ditches. The harvesting of alfalfa seed on all parts of the Project was started this week.

The first cutting of alfalfa "Time-of-cutting" experiments on D-Series was made, variety plots D-18 and 23 being cut. Grain sorghum variety block A-1 and 2 was thinned. The July plantings of the variety was seeded to D-6 and 7. Grain sorghums were also seeded to D-35 and 36. The last planting of cotton on D-11 has been made. Whippoorwill cowpeas were planted as a green manure crop with a 7-inch grain drill on A-16 to 22.

Eucalyptus row along east road was pruned and hoed. One hundred and sixty Menakher date seedlings, No. 29391, were transplanted from A-143 to A-25. A Zehidi seedling date palm bearing a cluster of fruit was dug with a large core of earth and sent to the Missouri Botanical Garden.

Shingles have been hauled for repairing the roofs of the Farm House and Office Building.

Belle Fourche:

During the week ending July 11, 1914, the maximum temperature was 100, minimum temperature, 60, and precipitation, .57 inch.

All the grain, alfalfa, corn and potatoes were irrigated in Field A, and the corn and potatoes cultivated.

Corn and potatoes were irrigated in fall irrigation experiment, and oats and corn in field O partly completed.

Harvesting of oats and barley in the dry land rotations was commenced and the oat varieties cut Saturday.

The balance of the time was used in hoeing weeds and roguing grains in the variety test.



25 July, 1914.

## FIELD NOTES.

Belle Fourche (continued).

The following table shows the yields per acre of the first crop of alfalfa on the rotations under irrigation in field A (1914).

Rot. No.	Plat No.	Yield per acre, tons.	Year	Height at maturity, inches.	Description of rotation
8	I-51	1.50	3rd	30	Continuous cropping.
40	I-2	1.44	2nd	30	Potatoes, beets, alfalfa, alfalfa
42	I-6	1.38	2nd	25	Oats, beets, alfalfa, alfalfa
44	III-20	1.64	2nd	27	Potatoes, oats, alfalfa, alfalfa
48	II-20	1.88	2nd	30	Wheat, oats, alfalfa, alfalfa
60	I-11	1.16	2nd	25	Potatoes, oats, beets, alfalfa, alfalfa, alfalfa
60	I-12	1.44	3rd	27	Potatoes, oats, beets, alfalfa, alfalfa, alfalfa
61	II-15	1.26	2nd	28	Potatoes, oats, (man.), beets, alfalfa, alfalfa, alfalfa
61	II-16	1.58	3rd	29	Potatoes, oats (man.), beets, alfalfa, alfalfa, alfalfa
62	II-9	1.56	2nd	27	Corn, oats, beets alfalfa, alfalfa, alfalfa
62	II-10	1.70	3rd	28	Corn, oats, beets, alfalfa, alfalfa, alfalfa
65	III-15	<u>1.50</u>	2nd	29	Corn (hogged), flax, alfalfa, alfalfa, alfalfa (hogged)
Average.....		1.50			





1 August, 1914.

## FIELD NOTES.

## Scottsbluff.

During the week ending July 18, the weather continued hot and dry, with the exception of a small shower (.16 inch) on July 17. This was not sufficient to benefit the crops to any extent.

All of the dry land small grain crops were harvested. All of the barley varieties were cut and some of the oat varieties are beginning to mature.

The second crop of alfalfa was cut and will be stacked as soon as the hay dries.

The hot weather has caused a rapid growth of the corn.

The sugar beets have been irrigated for the first time, also, all of the potatoes on field K.

The Tri-State ditch south of the farm has been running a very large head of water. It is understood that this ditch was carrying about 1700 cubic feet of water when a gopher hole caused a break in one of the banks, which Mr. Knorr states was "one of the worst breaks he has ever seen in a large canal". The cost of repairing this break is estimated between \$4,000 and \$5,000. It is all the more serious on account of the loss of irrigation water at this time.

The beet web-worm is working on the alfalfa to a large extent. This seems to be true over the larger part of the Valley. Some of the farmers thought this would affect the feeding qualities of the hay, and that the stock would refuse to eat it. Some of the worst affected hay was fed to the cows and horses on the Experiment Farm, and was eaten as readily as the unaffected hay.

Messrs. F. D. Farrell and Dan Hansen visited the farm during the week.

During the week ending July 25, the weather continued extremely dry. On the 24th there was



1 August, 1914.

## FIELD NOTES.

## Scottsbluff (continued).

a shower of .16 inch; this was not sufficient to do any particular good. It wet the hay to such an extent that haying was delayed for little more than a day. All of the second crop of hay was put in a fairly good shape.

Nearly all the oats and barley plats have been harvested and the wheat is ripening very rapidly.

The threshing machine is now being put in shape, and it is hoped to begin threshing next week if the weather will permit.

## Yuma.

During the week ending July 18, the maximum temperature was 107, minimum temperature, 66, and the greatest daily range 39.

Twenty-five acres were irrigated during the week.

The last plats of the third cutting of alfalfa in the time-of-cutting experiments were harvested in the E-series; also, plats D-20 and 24, of the time-of-cutting experiments.

The following plats were harvested during the week:

C-23 and 26..... Sudan grass

C-25..... Millet

B-9 to 18..... Alfalfa

Deciduous orchard B-23 to 32 was disked. All volunteer Egyptian cotton along borders and ditches was cut out.

Date rows along the east and north sides of the Farm were pruned and hoed. A-5 was put in shape for corn planting.

Cotton on A-6, 7, 8 and 14<sub>2</sub> was thinned, and D-11, 15, A-8 and 14<sub>2</sub> were cultivated. The planting of grain sorghum on D-37 to 40 was cultivated. Cowpeas were sown on plats A-23, D-19 and E-9.



1 August, 1914.

## FIELD NOTES.

## Yuma (continued).

Additional help is being employed for a short time to eradicate the bermuda grass and weeds from the irrigation system.

A small alfalfa huller was received from the Birdsell Manufacturing Company.

## San Antonio.

During the week ending July 18, the maximum temperature was 101, minimum temperature, 68, and greatest daily range, 33.

Hauling of hay was continued and the greater part of the sorghum in 8-inch drills on the rotation plats was hauled.

The milo from the rotation plats was threshed and the yields will be reported next week. Milo in the rate-of-seeding test on C-5 was harvested.

## Truckee-Carson.

During the week ending July 18, the maximum temperature was 96, minimum temperature, 52.

The following fields were irrigated:

A1, 2, 3, 4; F1, 2, 3, 4, 5, 6, 7, 8;  
G1, 2; H1, 2, 4, 5, 6, 7, 8, 9, 10,  
11, 15, 16, 17, 18, 19, 20, 23, 24, 25,  
26, 27, 28, 29.

The work of installing tile drains under plats Y1, 3, 4, 6, 13 and 15 was continued throughout the week.

A circular on "The Tomato Wilt Disease" was mimeographed, and is now ready for distribution. This circular was issued because of the prevalence of the disease on the Project this year.





1 August, 1914.

## FIELD NOTES.

## Belle Fourche.

During the week ending July 18, the maximum temperature was 99, minimum temperature, 48, and precipitation .15 inch.

The alfalfa in field A was irrigated. This makes the third irrigation for the second cutting. As usual, the second cutting alfalfa does not make as rank growth as the first cutting.

The beets in the irrigated rotations were furrowed, and tued, and are now ready for irrigation.

The harvesting in the dry land rotations is very nearly completed. The varieties of winter grain have been cut and winter wheat nursery harvested. The winter grains in summer fallow are very good.

The forestry and orchard were irrigated.

The corn and potatoes on the fall irrigation experiment were cultivated. Also, the corn in field O, and variety potatoes.

Winter wheat in AI-48 was harvested. The alfalfa, wheat, oats, flax and barley in the time-and-method-of-seeding alfalfa experiment were irrigated.

Messrs. Babcock, Towls, and Ogaard visited the farm during the week on their return from Hays, Kansas.

The following table shows the gains made by the hogs on alfalfa pasture for each period since May 20

Dates	Days	Hogs	Weights		Gain			Corn fed Lbs.	Lbs. pork per acre per day
			Initial	Final	Total	%Daily	per day per hog		
5/20-6/1	12	6	620	704	84	1.08	1.16	230	28
6/1-6/13	12	4	462	532	70	1.18	1.45	200	23.2
6/13-6/22	9	4	532	534	2	.03	.055	95.4	.88
6/22-7/2	10	4	534	546	12	.21	.3	106.8	4.8
7/6-7/16	10	8	410	440.5	30.5	.71	.38	82	12.16

Thirty and five-tenths pounds gain at 7 cents equals \$2.13; 82 pounds of corn at \$1.70 per hundred equals \$1.39. The net returns from 1/4 acre equals 74 cents, or \$2.96 from one acre, or 29 cents per acre per day.



8 August, 1914.

## FIELD NOTES.

## Truckee-Carson.

During the week ending July 25 the maximum temperature was 96, minimum 50.

The second crop of alfalfa was cut and stacked on the following fields: F1 to 8, G2, H1 to 20 (excluding 18), D13, E1 to 3, and A4 and 5.

Work was continued on the tile drain in Field Y.

On July 23 and 24 Mr. Farrell paid the farm and project a short visit. During his stay he visited a number of the best dairy herds on the project.

On the 24th the people of the Harmon school district gathered for the purpose of leveling the 10-acre tract recently granted them by the Reclamation Service, preparatory to building a new school house. All the farmers in the district sent their teams as well as several teams from Fallon. At one time there were over 140 head of stock working on the ground. At noon a basket lunch was served by the ladies. Mr. Farrell gave a short talk, outlining some of the work proposed on the project.

On the evening of the 24th Messrs. Headley and Farrell left for Ogden, Utah. From there Mr. Headley went to visit a number of the Idaho and Utah projects.

A pig feeding experiment was begun July 22. The experiment includes two pigs, and they are to have alfalfa pasture with a 2 per cent grain ration. The grain fed is rolled barley.

## Huntley.

During the week of July 25 alfalfa in Field A-III was harvested.

Sugar beets and corn in Field B, and corn in the orchard tract were given first irrigation.

The weather during the past month has been unusually warm, and all crops under irrigation are in excellent condition. The prospects for large yields on all parts of the project are much better than ever before.

Thursday Mr. Hansen returned from a two weeks' trip to the Scottsbluff and Belle Fourche farms.





8 August, 1914.

## FIELD NOTES.

Huntley (continued).

Flax, oats, wheat, beets, and alfalfa were irrigated, this being the first irrigation for the beets and spring seeded alfalfa, and second and last for the flax, wheat, and oats.

Corn plats were cultivated.

The nine spring pigs in Rotation 67 were weighed for the first period of ten days, July 7 to 17, and the following results obtained:

Days	Number of hogs	Initial weight	Daily gain	Total gain per day (pounds)	Net daily returns per acre.	Pounds per acre per day	Amount grain fed (pounds)
10	9	367.5	1.03	3.95	\$0.82	15.80	75

The second crop of alfalfa has been harvested. The spring seeding of alfalfa was clipped.

Beets and potatoes were cultivated.

Corn and potatoes received the first irrigation.

Considerable time was devoted to hoeing weeds.

The beet plants that were transplanted the latter part of May were counted. Twenty-five healthy and the same number of plants affected with Brown rot were used in transplanting. Upon counting twenty-four of each were found growing.

Scottsbluff.

During the week ending August 1 the weather continued dry, although there were a number of local showers, some of them extremely heavy; but no precipitation was had at the farm.

Four men were kept busy irrigating and a portion of the time five men were so engaged. It seems that everything requires water at about the same time.



8 August, 1914.

## FIELD NOTES.

## Scottsbluff (continued).

The corn is making a remarkable growth; this no doubt due to the hot weather we have been having.

Threshing was started during the week, some of the general fields being threshed and all of the dry land grain. Next week some of the results of the dry land yields will be given.

Practically all of the grain on the farm is cut with the exception of one field of oats, which was put in for feed, and one field of barley, also seeded for feed.

The potato disease has again made its appearance and in some fields appears to affect the tubers differently to what it did in previous years. At this stage they throw out three to four and sometimes as many as five new sprouts. At this time of the season sprouts have been found from 2 to 3 inches long, and the indications are that this growth will continued.

The break in the Tri-State ditch is practically mended. The cost of repairing the break will no doubt be much more than was at first expected. The company believes that it will cost between \$25,000 and \$30,000 when all is paid.

Mr. Bedford, the man who has the contract for putting in the Government dam at Lake Minatare, worked on the Tri-State break for about a week.

We got some very interesting information from Mr. Bedford in regard to feeding his horses, and the most interesting statement that he made was that he prefers to feed alfalfa hay to any other kind. Until two years ago he often lost a large number of horses. This was when he fed either wild or tame hay. When he came out here and began feeding alfalfa hay the health of his horses has been much better and he does not lose one horse where formerly he lost twenty. He attributes this to the fact that when hay is fed other than alfalfa the horses will eat the grain first and this very greedily, causing colic and other digestive troubles. When alfalfa is fed they will often eat alfalfa hay before they will eat the grain.





8 August, 1914.

## FIELD NOTES.

Scottsbluff (continued).

Yield of Alfalfa from Field K,  
second cutting (tons per acre).

	Time of Seeding.			
	Spring 1912	Fall 1912	Spring 1913	Fall 1913
Number of plats....	6	5	3	3
Maximum yield.....	2.04	2.09	1.96	1.60
Mean yield.....	1.92	1.84	1.87	1.57
Minimum yield.....	1.72	1.68	1.72	1.54

Under date of July 15 Mr. Holden submitted the following report:

"Inclosed I am sending the results of the hog pasturing experiment which closed July 3, and also the number and total weight of hogs in each lot now on pasturing experiment.

Table 1 gives the individual weights of the hogs in each lot; Table 2 is the summary of the experiment; and Table 3 shows the results of the last 29 days of the experiment. As the hogs were all over the cholera and in good condition at the beginning of the last month, the results of the last 29 days ought to be fairly comparable. Table 4 gives the number and weight of each lot that are now on experiment.

There was very little difference in the condition of the different pastures at the end of the experiment, except that Lot 3 (3 per cent corn) could have carried a little more, while rotation 65 was slightly over pastured.

The pigs now on experiment are doing fine and





8 August, 1914.

## FIELD NOTES.

## Scottsbluff (continued).

if the cholera does not get started again I am sure we will get some good results from them.

We began breeding sows July 10. There will be about 16 sows bred for fall pigs, so if we have any luck at all there will be a fine bunch of shoats for next spring.

We are having fine growing weather lately and the crops are all looking good.

Table 1.— Individual weights, pounds gain, days on pasture, and pounds daily gain of hogs during the period May 4 to July 3.

Rotation 65; 2 per cent corn.

Number	Initial weight	Final weight	Pounds gain	Days on pasture	Daily gain	Percentage daily gain
51	98	148	50	60	.83	.68
52	102	153	51	60	.85	.67
53	106	161	55	60	.91	.70
54	110	167	57	60	.95	.70
55	102	97	- 5	31	...	...
91	52	37	-15	31	...	...
126	51	93	42	45	.93	1.34
142	64	79	15	30	.50	.70
143	61	75	14	30	.47	.68
Total and average for 60 days			284		4.76	

## Lot 1: No Grain.

85	116	134	18	60	.30	.24
57	74	61	-13	23	...	...
58	94	114	20	60	.33	.32
59	74	59	-15	30	...	...
60	139	155	16	59	.27	.19
133	50	63	13	38	.31	.60
Total and average for 60 days			67		1.13	



8 August, 1914.

## FIELD NOTES.

Scottsbluff (continued).

Lot 2; 1 per cent corn.

Number	Initial weight	Final weight	Pounds gain	Days on pasture	Daily gain	Percentage daily gain
61	80	117	37	60	.62	.63
62	146	...	..	9	...	...
69	81	82	1	30	.03	.00
64	95	115	20	60	.33	.32
65	96	141	45	60	.75	.64
128	187	212	25	46	.54	.27
Total and average for 60 days			128		2.13	

Lot 3; 3 per cent corn.

66	79	153	74	60	1.23	1.11
67	81	62	-19	30	....	....
68	102	172	70	60	1.17	.87
63	100	163	63	60	1.05	.81
70	137	206	69	60	1.15	.68
95	66	52	-14	23	....	....
134	59	109	50	37	1.35	1.68
92	66	99	33	28	1.18	1.45
Total and average for 60 days			369		6.15	

Lot 4; 2 per cent barley.

88	132	190	58	60	.97	.60
72	67	103	36	60	.60	.72
75	98	143	45	60	.75	.63
74	110	171	60	60	1.00	.73
73	94	140	46	60	.77	.66
92	51	66	15	31	.47	.83
Total and average for 60 days			260		4.17	





## FIELD NOTES.

Scottsbluff (continued).

Lot 5; 2 per cent corn.

Number	Initial weight	Final weight	Pounds gain	Days on pasture	Daily gain	Percentage daily gain
76	69	126	57	60	.95	1.01
78	85	143	58	60	.97	.87
71	132	193	61	60	1.01	.63
89	71	118	47	60	.78	.85
80	137	199	62	60	1.03	.62
93	52	...	..	12	....	...
131	54	67	13	17	.80	1.27
Total and average for 60 days			298		4.97	...

Lot 6; 2 per cent corn  
(3 pastures).

79	63	52	-11	32	....	....
77	93	151	58	60	.97	.81
83	162	223	61	60	1.01	.53
56	90	81	-9	32	....	....
84	91	83	-8	32	....	....
94	52	107	55	60	.92	1.21
129	84	113	29	28	1.03	1.07
130	54	82	28	28	1.00	1.49
137	56	86	30	28	1.07	1.54
Total and average for 60 days			261		4.35	

Lot 7; 2 per cent corn; 1 pasture.

86	100	151	51	60	.85	.68
96	159	218	59	60	.98	.52
82	103	158	55	60	.92	.71
81	71	died	..	12	...	...
87	66	68	..	29	0	0
132	60	99	39	45	.87	.56
131	67	94	27	28	.96	1.20
Total and average for 60 days			233		3.88	



8 August, 1914.

## FIELD NOTES.

Scottsbluff (continued).

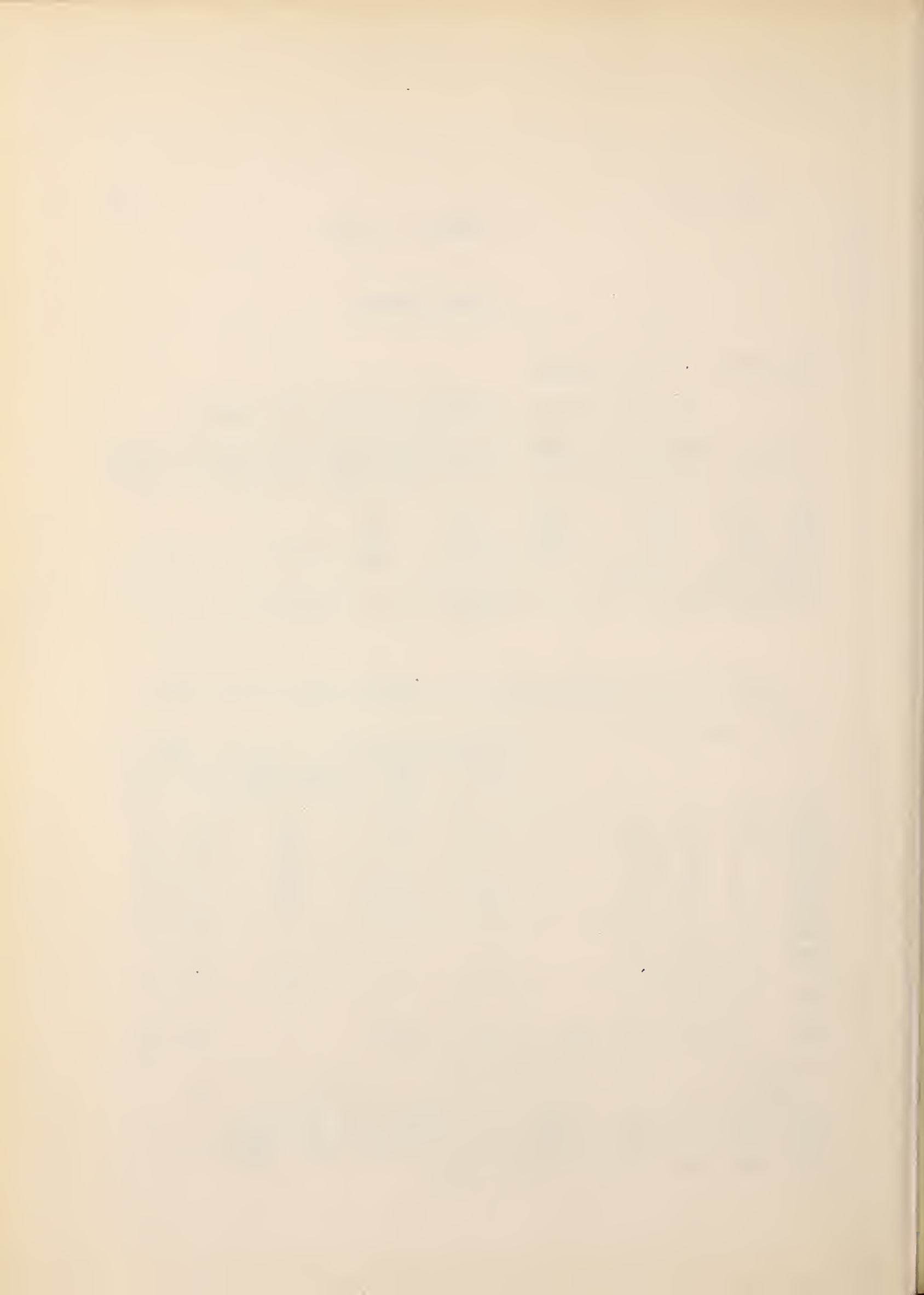
Lot 8; 2 Sows, 14 Pigs; 2 per cent corn.

Number	Initial weight	Final weight	Pounds gain	Days on pasture	Daily gain	Percentage daily gain
Sow No.1	416	350	-66	40	....	....
Sow No.2	286	253	-33	60	....	....
14 Pigs	164	636	472	60	7.88	.49
Total and average for 60 days			373		6.21	

Table 2.— Summary of the results of the hog pasturing experiment from May 4 to July 3.

	Total gain lbs.	Amount grain fed	Hog days no gain *	Net returns per acre
Rot. 65, 2% corn.....	284	16.2	62	\$46.32
Lot 1, no grain.....	67	....	53	20.10
Lot 2, 1% corn.....	128	7.3	39	20.88
Lot 3, 3% corn.....	369	20.5	53	61.20
Lot 4, 2% barley.....	280	878 #	..	42.88
Lot 5, 2% corn.....	299	14.5	12	54.60
Lot 6, 2% corn 3 pastures.....	261	13.3	96	46.40
Lot 7, 2% corn, 1 pasture.....	233	11.6	41	42.08
Lot 8, sow and pigs..	373	21.0	..	61.52

\*This loss, or no gain, was due to cholera. The hogs died or were taken off because of sickness. In case of Lot 8 the losses of the sows were subtracted from the gains made by the pigs.



8 August, 1914.

## FIELD NOTES.

Scottsbluff (continued).

Table 3.— Summary of the last 29 days of the hog pasturing experiment.

Lots.	Initial weight	Final weight	Total gains	Daily gains
Rotation 65, 2% corn.....	723	876	153	5.26
Lot 1, no grain.....	440*	311*	26	.90
Lot 2, 1% corn.....	521	585	64	2.20
Lot 3, 3% corn.....	704	901	197	6.79
Lot 4, 2% barley.....	646	747	101	3.82
Lot 5, 2% corn.....	609	779	170	5.86
Lot 6, 2% corn, 3 pastures	604	762	158	5.43
Lot 7, 2% corn, 1 pasture.	600	720	120	4.13
Lot 8, sow and pigs, 2% corn.....	1076+	1239+	169	5.83

\* One hog weighing 155 was taken off on June 22.

+ One sow weighing 350 was taken off on June 12.

Table 4.—Number and weight of hogs now on experiment.

Lot.	Number of hogs	Total weight
Rotation 65, 2% corn	10	589
Lot 1, no grain.....	7	396
Lot 2, 1% corn.....	9	460
Lot 3, 3% corn.....	15	760
Lot 4, 2% barley....	10	561





8 August, 1914.

## FIELD NOTES.

## Belle Fourche.

During the week ending August 1 the maximum temperature was 104, minimum 53; precipitation .19.

The alfalfa in fields A and I was stacked and that in field K was cut.

The irrigation of the alfalfa plats in Field A was started and finished with the exception of a few plats.

The winter wheat in fields A and B was threshed and some of the spring wheats in B.

The oats in field O and the spring wheat and oats in field A were cut and shocked.

The corn and potatoes in fields A and P were cultivated, and the corn and potatoes in field P were rogued.

The winter wheat plats I-48 and II-27 in field A yielded 27.8 and 17.7 bushels per acre, respectively, and the 1-acre plat at the south end of Series II yielded 44.4 bushels.

Mr. M. A. Carleton visited the station Thursday and Friday.

Mr. Aune made a trip through North and South Dakota and Montana, visiting some of the experiment stations of those states.

The following table shows the yields of the second crop of alfalfa in the manner-of-seeding experiment started in 1913.

Plat number	Seeding		Yield per acre
	Time	Method	
III-33	5/9/13	Without nurse crop (early)	1.30
34	6/5/13	do (late).	1.30
35	6/5/13	Rows 21 inches.....	1.10
36	5/9/13	Nurse crop cut for hay....	1.14
37	5/9/13	Nurse crop cut for grain..	1.28
38	5/9/13	Without nurse crop (early)	.98
39	6/5/13	do (late )	.88
40	6/5/13	Rows 21 inches.....	.94
41	5/9/13	Nurse crop cut for hay....	1.20
42	5/9/13	Nurse crop cut for grain..	1.36
43	5/9/13	Without nurse crop (early)	1.18
44	6/5/13	do (late )	1.02
45	6/5/13	Rows 21 inches.....	.64



## FIELD NOTES.

## Belle Fourche(continued).

The following table shows the yields of the second crop of alfalfa, 1914, in the rate-of-seeding experiment started in 1913 in Field K.

Plat number	Rate of seeding (Pounds)	Yield per acre (Tons)	Height at maturity (inches)
1	2.5	1.00	21
2	3.0	1.10	22
3	4.5	1.30	22
4	6.0	1.30	21
5	8.0	1.10	20
6	10.0	.90	21
7	11.5	1.04	19
8	13.0	1.10	18
9	15.0	.84	18
10	16.5	1.06	16
11	18.5	.76	18
12	20.5	.70	16
13	22.5	.74	16
14	25.0	.96	17
Average		.99	

The following table shows the yields per acre of the second crop of alfalfa on the rotations under irrigation in field A (1914).

Rotation number	Plat number	Yield per acre (Tons)	Year	Height at maturity (inches)
8	I-51	1.26	3rd	23
40	I-1	1.22	1st	15
40	I-2	.94	2nd	22
42	I-5	.78	1st	15
42	I-6	.98	2nd	18
44	III-19	1.02	1st	18
44	III-20	.97	2nd	24
48	II-19	.96	1st	18





8 August, 1914.

## FIELD NOTES.

Belle Fourche (continued).

(Table continued).

Rotation number	Plat number	Yield per acre (Tons)	Year	Height at maturity (inches)
48	II-20	1.56	2nd	24
60	I-11	.92	2nd	20
60	I-12	1.00	2nd	20
61	II-14	.56	1st	14
61	II-15	1.20	2nd	20
61	II-16	1.18	3rd	19
62	II-8	.77	1st	14
62	II-9	1.90	2nd	18
62	II-10	1.14	3rd	19
65	III-14	.77	1st	18
65	III-15	1.36	2nd	24
Average		1.07		

## San Antonio.

During the week ending July 25 the maximum temperature was 102.5, minimum 67; greatest daily range, 34.

All of the cotton on the farm was weeded.

Hauling of sorghum hay was continued.

The greater part of the first cutting of hay is now in.

The milo in the spacing experiments and other grain sorghums on B5 were threshed.

A 1/5 acre plat of Sudan grass for seed was threshed and yielded at the rate of 390 pounds of seed per acre.

Soil samples were taken in corn on the rotation plats and in the cultivation experiments on B4. The soil is very dry and hard.

Corn on the farm is ripening rapidly and harvesting will be started at an early date. The yield promises to be the best since the station was established.



8 August, 1914.

## FIELD NOTES.

## San Antonio (continued).

Cotton is suffering seriously from drought, and practically all of the forms being put on are dropping. At the present time, however, a reasonably good crop is assured. A number of open bolls have been found on the farm. The first bale of cotton for the season was sold on the San Antonio Cotton Exchange about a week ago, being a few days earlier than the first bale last season.

The yield of milo from the rotation plats, threshing of which was completed last week, are given in the following table:

Plat number	Yield per plat		Yield per acre.			% of Grain	% of bird injury	Stand, plants per acre
	Straw and Grain	Grain	Straw and Grain	Grain				
	Pounds	Pounds	Pounds	Pounds	Bushels			
A4-11	2154	727	8616	2908	51.9	33.8	0	18280
A4-15	1962	616	7848	2464	44.0	31.4	0	22204
A5-1	1934	623	7736	2492	44.5	32.2	slight	24696
A5-4	1786	736	7144	2944	52.6	41.2	slight	30188
A5-8	1866	666	7464	2664	47.6	35.7	0	31980
A5-12	2052*	674*	9120	2995.6	53.5	32.8	0	32992
A5-16	1204#	362#	9632	2896	51.7	30.1	0	31352
A6-1	1354	136	5416	54.4	9.7	10.0	.	.....
A6-2	2222	586	8888	2344	41.2	26.4	1 to 2	32316
A6-5	2030	400	8720	1600	28.6	19.7	2 to 3	31944
A6-13	2020	393	8080	1572	26.1	19.5	8 to 10	32700
B4-15	1964	553	7856	2212	39.5	28.2	0	22800
B4-18	2102	644	8408	2576	46.0	30.6	0	28956
R5-17	1866	419	7464	1676	29.9	22.4	2 to 3	35532
Aver- age <u>1</u>	....	...	8782.8	2411	43.2	29.5	.....	28918

\* 9 rows

# 5 rows

1 excluding A6-1.





8 August, 1914.

## FIELD NOTES.

## San Antonio (continued).

It should be observed that A6-1 is not included in the average. The yield from this plat was practically a failure, due to the poor stand secured early in the season. Even though replanted, the sorghum midge caused almost complete failure of the late-planted plants to mature seed. The yield from plat A5-12 is computed from 9 rows, as the stand on one row was a failure, and the yield from plat A5-16s is computed from the yield of five rows, as the other five rows were failures, due to late planting and midge injury.

The yields were somewhat disappointing, the average being appreciably lower than in 1913. The lower yields are attributed to a poorer stand and more midge injury than last season. The plants grew about a foot higher and consequently the percentage of grain is somewhat lower.

The milo on C5, where several different rates of seeding were being tested, was threshed during the week and the following table gives a summary of the results of this test.

Distances	Average number plants per row	Average number heads per row	Average number branches per plant	Percentage heads pendent	Yield per acre (bushels)
Rows 4 ft apart not thinned.....	1370	1.03	0.31	6	21.8
Plants 2" apart...	902	1.04	0.41	5	18.2
" 5" "	504	1.08	0.50	7	16.1
" 8" "	324	1.23	1.99	31	11.8
" 12" "	254	1.48	2.64	32	6.6
" 18" "	179	2.47	3.54	39	3.6
" 24" "	129	3.04	3.61	46	1.2
Plants 5" apart, rows 3' apart	478	1.06	0.22	4	25.3
" 3'3" "	439	1.07	0.41	9	24.9
" 3'6" "	498	1.08	0.45	9	23.6
" 3'9" "	529	1.04	0.64	9	18.6
" 4' "	504	1.03	0.50	7	16.1





8 August, 1914.

## FIELD NOTES.

## San Antonio (continued).

As will be observed, the yields are considerable below those in the rotation experiments, which was due to the sorghum midge. The milo on the rotation plats was planted March 23 and 24, while in the rate-of-seeding test the seed was put in on April 11.

This experiment is practically a duplicate of that conducted last year, and in the main confirms the conclusion drawn from last year's experiment, namely, that thick planting reduces the tillers and results in a more uniform and shorter ripening period.

This was an excellent year to determine the effect of thick seeding on the yield when the midge appeared before the end of the flowering season of the crop. Where the tillers and branches were suppressed fairly good yields were obtained.

## PERSONAL.

Mr. Scofield returned July 31 from a short trip to England and the Continent in the interest of southwestern long-staple cotton.

Mr. Farrell is expected to return to Washington August 8.

Mr. Wood returned to the Washington on the 6th after a month's leave in the Middle West.



## FIELD NOTES.

Huntley.

During the week ending August 1 the maximum temperature was 99, minimum 54.

Alfalfa in Field A-III was hauled in. The yields from this field are as follows:

Plat number	Pounds per plat	Tons per acre
AIII-1	805	1.61
2	785	1.57
3	745	1.49
4	660	1.32
5	785	1.57
6	925	1.85
7	830	1.66
8	800	1.60
9	860	1.72
10	1055	2.11
11	1095	2.19
12	895	1.79
13	1120	2.24

Hauling of alfalfa from B-II, plat variation, was begun. The second crop of hay is all in excellent condition, there having been no rain to damage it. The precipitation recorded during July was only 0.05 inch. The second crop of alfalfa on plats M-I-11 and 15 yielded 0.87 tons and 1.08 tons, respectively. All the oats in this field have been harvested.

Prof. Chilcott, Mr. Burr, and Mr. Cole, and also Messrs. Belz and Clark visited the station during the week.

Irrigated rotations.

Beets and alfalfa were irrigated.

The second cutting of alfalfa was hauled in during the early part of the week and the following yields obtained:





## FIELD NOTES.

Huntley (continued).

Plat number.	Tons per acre	Height, inches.
K-II - 5	.56	19
II - 6	1.91	34
III- 1	1.67	32
5	1.05	21
6	1.96	33
7	1.83	34
11	.72	21
12	1.57	32
IV - 3	.56	18
4	1.84	35
9	.70	20
10	2.23	34
13	.39	18
14	.95*	25
2200	1.26	26
Average.		
1st year	.66 (clipped)	19.5
2nd year	1.90	32
3rd year	1.59	30.6

\* 0.95 tons for KIV-14 is perhaps an error in weighing and the figure was not used in obtaining the average yield for 2nd year alfalfa.

Cutting of grain was begun during the latter part of the week.

The nine spring pigs in Rotation 67 were weighed for the second period of ten days (July 17-27).

Days	Number of hogs	Initial weight	Daily gain	Total gain per day (Pounds)	Net daily returns per acre	Pounds per acre per day	Amount grain fed (Pounds)
10	9	407	1.12	4.8	\$1.02	19.2	80



## FIELD NOTES.

## San Antonio.

During the week ending August 1 the maximum temperature was 102, minimum 68; greatest daily range 32.

Hauling of the first crop of sorghum from the rotation plats was completed. The yields are given in the following tables:

Yield of Sorghum in 8-inch drills, 1st cutting 1914.

Plat number.	Yield.		
	per plat (pounds)	per acre (pounds)	per acre (tons)
A4-12 *	3504	14,016	7.0
A4-16 *	3494	13,976	7.0
B4-12	2444	9,776	4.9
B4-13	2324	9,296	4.7
B5- 6	2420	9,680	4.8
B5-11	2652	10,608	5.3
B5-15	2501	10,004	5.0
Average	2762.7	11,050.9	5.53

\* Orange Sorghum; all others Sumac.

Yield of Sorghum in 4.1-ft. drills, 1st cutting 1914.

A4-10	525	2,625	1.3
A6- 4	946	3,784	1.9
B5- 5	1232	4,928	2.5
B5-9	1144	4,576	2.3
B5-13	1340	5,360	2.7
Average		4,254.6	2.14



15 August, 1914.

## FIELD NOTES.

San Antonio (continued).

Yield of Sorghum, Cultivation Experiments,  
first cutting.

Plat number.	Description.	Yield.		
		per plat	per acre	
		pounds	pounds	tons.
1	8-in.drills	1168	11,680	5.8
2	4.1-in.drills hoed	668	6,680	3.3
3	4.1-in.drills cultivated	770	7,700	3.9
4	4.1-in.drills cultivated 7 rows	500	5,714	2.9

It is observed that the close-planted sorghum gave the highest yield. The sorghum in rows not cultivated but kept clear of weeds by hoeing gave a yield of 3.3 tons per acre as compared with 3.9 tons per acre from a plat adjacent which was cultivated. The difference is very small and when it is considered that the stand on the uncultivated plat was noticeably poorer than on the other, the difference in favor of cultivation is very slight.

Bean varieties on B3 were harvested.

Johnson grass on waste land was mown.

Chinese corn on B4 was harvested and the following table gives a summary of the results from this test.

Distance apart thinned.	Average number of stalks per 264 foot row.	Average yield in bushels per acre.
2 inches.....	393	30.6
10 inches.....	281	28.4
18 inches.....	186	21.3
48 inches.....	94	8.9





15 August, 1914.

## FIELD NOTES.

## San Antonio (continued).

Mr. C. R. Letteer and Mr. R. M. Meade returned from College Station on the 31st.

Mr. P. V. Cardon and Mr. Guy S. Meloy arrived at the station on the 30th.

## Yuma.

During the week ending July 24 the maximum temperature was 108, minimum 64; greatest daily range, 42.

The alfalfa seed crop was harvested from row plantings of Peruvian variety on B-19 to 22 and C-43 and 45; also from Chilean variety broadcast planting on C-27.

Nurseries, cotton, and grain sorghums were cultivated.

The extra labor employed continued weed and grass clearing from irrigation ditches.

New borders 7 and 8 were retouched and bordered ready for planting.

A variety test including 69 trees of 8 species of Eucalyptus were planted on the triangular piece of land at the southeast corner of the farm which is designated as A-26.

Mr. Blair spent two days in the Coachella Valley and four days of last week in the Salt River Valley.

Messrs. T. H. Kearney, A. McLachlan, M. Buster, R. E. Kerr, and J. Taylor visited the station for two days at the close of the week.

With the assistance of the station force 11 acres of Durango cotton on ranches in the Valley were rogued of off-type plants to produce a stock of seed that should supply sufficient clean seed for the valley planting in 1916.

Twenty-seven acres were irrigated during the week.



15 August, 1914.

## FIELD NOTES.

Yuma (continued).

During the week ending August 1 the maximum temperature was 109, minimum 70; greatest daily range, 34.

Twenty-eight acres were irrigated.

Seed alfalfa from B-19 to 22 was stacked.

Latest plats of first cutting D-series and first plots of 4th cuttings E-series; time-of-cutting experiments, were harvested; also alfalfa on C-6 and 7, and D-17.

Milo-Maze on C-49 and 40 was thinned.

Latest cotton planting on D-11 was thinned.

Recently leveled checks B-7 and 8 were seeded to plots of Whippoorwill and Groit cowpeas, Tepary beans, and soy beans, to be plowed under as the green manure crop preceding alfalfa seeding.

The coming fall B-6 will be leveled and seeded to alfalfa without a preceding green manure crop.

A-5 was prepared and planted to corn.

Cotton and sorghum on D series and pecans on F-1 were cultivated.

Three extra laborers were employed in hoeing ditches, borders, eucalyptus, and date plantings.

About five pounds of date seed, mostly of the variety Rhars, were sown promiscuously along the unreclaimed and flood lands on the inside of the river levee near Bard.

Fifty-one plants of S.P.I. No. 30473, Tafelet dates, were planted on A-25.

About the Valley the general threshing of the 1914 alfalfa seed crop has begun and is returning very light yields.





## FIELD NOTES.

## Truckee-Carson.

During the week ending August 1 the maximum temperature was 97, minimum 51.

On July 27 Mr. Curtis, accompanied by Mr. Menardi, of the Nevada Experiment Station, made a trip to Stillwater to inspect the grain varieties being grown at the Indian School and the L. W. Langford place. The barley varieties at the Indian School were so poor that they were cut for hay on July 24. The soil in which these varieties were planted was of so spotted a character that comparative results obtained by harvesting and threshing would be of no value.

The wheat and oat varieties at Mr. Langford's were harvested on the 28th and 29th. Previous to cutting, samples of the grain were obtained for exhibition purposes at the county and state fairs and for the Panama-Pacific Exposition.

Work of laying the tile drains in the "Y" series was continued throughout the week and the following fields were irrigated: A, S, S, H12-13-14-21-22; E1-2-3-6-7, and D13.

The second cutting of the alfalfa varieties on H18 was made on the 31st.

Work was begun on building a road along the ditch bank on the north side of the "Y" series.

The results of the experiment to determine the percent of moisture in the time-of-cutting experiment for alfalfa have been completed for the first cutting. Seven cuttings were made and each cutting was represented by a series of 3 plats. The area of each plat is marked by a galvanized iron hoop 3 feet in diameter. After cutting, the alfalfa was weighed green, then hung in the sun and wind and dried until there was no further loss in weight. The drying required from 2 to 4 weeks. Notes were taken on the height of the plants, the percent of bloom, and the length of the basal shoots.

The results obtained were as follows:



15 August, 1914.

## FIELD NOTES.

Truckee-Carson (continued.)

Series	Plat number	Height cm	Blooms %	Basal shoots cm	Green weight grams	Dry weight grams	Loss weight grams	% Loss	Date cut
I	1	51	0	0	2211	473	1738	18.6	5/13
I	2	53	0	0	2539	481	2058	81.2	
I	3	45	0	0	1520	362	1158	76.3	
Average		50	0	0	2090	439	1651	79.0	
II	1	60	0	0	2157	500	1657	76.9	5/20
II	2	60	0	0	2002	459	1543	77.1	
II	3	55	0	0	1881	475	1406	74.9	
Average		58	0	0	2013	478	1535	76.3	
III	1	56	0	0	1980	472	1508	76.2	5/27
III	2	60	0	0	2194	502	1692	77.2	
III	3	63	0	0	2008	462	1546	77.0	
Average		60	0	0	2061	479	1582	76.8	
IV	1	68	.05	1-2	2884	689	2195	76.2	6/3
IV	2	68	.05	1-2	2257	558	1699	75.3	
IV	3	65	.05	1-2	2188	564	1624	74.3	
Average		67	.05	1-2	2433	604	1839	75.6	
V	1	75	33	5-8	2738	694	2044	74.8	6/10
V	2	65	33	5-8	1970	529	1441	73.3	
V	3	68	33	5-8	2476	656	1820	73.5	
Average		69	33	5-8	2395	626	1768	73.9	
VI	1	75	75	5-8	2205	640	1565	71.1	6/17
VI	2	70	75	5-8	2186	571	1615	73.9	
VI	3	80	75	5-8	2845	715	2130	74.9	
Average		75	75	5-8	2412	642	1770	73.3	
VII	1	75	100	6-10	2460	656	1804	73.4	6/24
VII	2	75	100	6-10	2850	757	2093	73.5	
VII	3	75	100	6-10	2946	728	2218	75.3	
Average		75	100	6-10	2752	714	2038	74.1	





## . FIELD NOTES.

## Truckee-Carson (cont.)

Table of Averages.

Series	Height cm	Blooms %	Basal shoots cm	Green weight grams	Dry weight grams	Loss weight grams	Date cut	% Loss
I	50	0	0	2090	439	1651	5/3	79.0
II	58	0	0	2013	478	1535	5/20	76.3
III	60	0	0	2061	479	1582	5/27	76.8
IV	67	5	1-2	2433	604	1839	6/3	75.6
V	69	33	5-8	2395	626	1768	6/10	73.9
VI	75	75	5-8	2412	642	1770	6/17	73.3
VII	75	100	6-10	2752	714	2038	6/24	74.1

The alfalfa yields obtained from the various plots on the farm were as follows:

Field	Actual yield	Area	Calculated yield per acre (pounds)
E3	875	.51	1715
E2	1335	.51	2620
E1	775	.51	1518
G2	325	.27	1203
F1	635	.54	1175
F2	165	.45	367
F3	1000	.54	1853
F4	1340	.54	2484
F5	1650	.54	3059
F6	1425	.54	2640
F7	735	.54	1360
F8	1145	.54	2122
H1	3220	.66	4880
H4	900	.36	2500
H5	935	.30	3117
H6	760	.24	3167
H7	215	.19	1132
H10	2985	.45	6640
H12	925	.35	2640
H13	1490	.35	4260
H14	1560	.35	4460
H15	1450	.37	4160
H16	2145	.43	4990
H17	1895	.52	3645
H19	1985	.60	3310
H20	810	.60	1350
H21	775	.39	1986
H22	950	.39	2435





15 August, 1914.

## FIELD NOTES.

Belle Fourche.

During the week ending August 8 the maximum temperature was 102, minimum 52; precipitation—trace.

The following table shows the gains made by the hogs on alfalfa pasture for each period since May 20.

Dates	Number of days	Number of hogs	Weights.		Gains.			Corn fed	Pounds pork per acre per day
			Initial	Final	Total	% Daily	per day per hog		
5/20-6/1	12	6	620	704	84	1.08	1.16	230	28.0
6/1-6/13	12	4	462	532	70	1.18	1.45	200	23.2
6/13-6/22	9	4	532	534	2	.03	.055	95.4	0.88
6/22-7/2	10	4	534	546	12	.21	.3	106.8	4.8
7/2-7/16	10	8	410	440.5	30.5	.71	.38	82	13.16
7/16-7/25	9	8	440.5	485	44.5	1.07	.61	79.2	19.76
7/25-8/4	10	6	366	403	37	.96	.61	53.2	14.8

53.2 pounds of corn at \$1.70 per hundred equals \$0.90; 37 pounds gain, at .07 equals \$2.59, minus \$0.90, equals \$1.69, net returns from 1/4 acre. The net returns from one acre equals \$6.76.



15 August, 1914.

FIELD NOTES.

Belle Fourche (continued).

The irrigation of the alfalfa plats in Field A was finished and all the cultivated crops irrigated.

The last few plats of grain on Field A were cut.

The alfalfa on Field K was stacked and the field irrigated.

The threshing of the plats in Field B was started.

All the cultivated crops in Fields O and P were irrigated.

The oats in Fields I and O were stacked ready for the threshing machine.

The alfalfa in Fields O and P was irrigated.

Several of the plats in Field B were plowed.

Some time was spent in hoeing ditches and fence rows and cutting the alfalfa on the ditch banks.

Mr. J. Allen Clark visited the station Monday and Tuesday.

Mr. Aune returned from his trip on Friday.

Umatilla.

During the week ending July 18 the maximum temperature was 99, minimum 51.

During the week of July 25 the maximum temperature was 104, minimum 44.

A warm wind on Sunday did some damage to crops in need of moisture, but was not generally harmful on account of the fact that most of the crops were well irrigated.

Mr. A. B. Cordley, Dean of Agriculture, of the Oregon Agricultural College, and newly appointed Director of the Experiment Station, visited the Farm on the 20th and 21st. Mr. Cordley succeeds Mr. James Withycombe as Direction of the Station.

Mr. H. F. Wilson, Entomologist of the College and Experiment Station, visited the farm on Wednesday. Mr. Wilson has found several unclassified aphids on the vegetation indigenous to this district.





FIELD NOTES.

Umatilla (continued).

During the week of August 1 the maximum temperature was 102, minimum 57.

The first eggplant was marketed from the culture test. Although not as early as that produced about The Dalles, this is the first gathered about there, and the experiment indicated that proper starting of plants in hotbeds or greenhouses will result in earlier maturity of this plant.

The seed was threshed from sweet clover on Field D4.

Irrigation and cultivation of various fields continued as usual.

During the week ending August 8 the maximum temperature was 103, minimum 52.

Harvesting of potatoes from Field A4 was begun preparatory to planting clover.

The harvesting of this crop completes the first rotation of crops on this land, namely, clover 2 years, corn 1 year, and potatoes 1 year. The yield of tubers will be very light.



22 August, 1914.

## FIELD NOTES.

## Scottsbluff.

During the week ending August 8 three and four men were kept busy irrigating alfalfa, potatoes, and sugar beets. The rest of the force was engaged in threshing. On account of the threshing and irrigating little office work was done, and the yields of the various crops can not be given at this time. A report will be made later.

After Effects of Fall Irrigation.

Some interesting after effects of fall irrigation were observed this year on series VI and VII in field H, where the fall irrigation experiments were conducted in 1911, 1912, and 1913. Series VI was irrigated each fall preceding the planting of crops during the three years mentioned, while Series VII received no fall irrigation. The two series were otherwise treated identically. In the spring of 1914 three varieties of barley were planted across these two series. About mid-season it was observed that the barley on series VI (which had been fall irrigated as above mentioned) grew more vigorously than that on series VII. In order to determine whether or not there was any actual difference, each of the three varieties was harvested separately on each series. The results are given below, the grain yields being reported in bushels, and the straw yields in pounds, per acre:

Variety	Fall Irrigated		Not Fall Irrigated		In Favor Fall Irrigation	
	Grain	Straw	Grain	Straw	Grain	Straw
Franconian	58.1	2946	49.5	2220	8.6	726
No. 90	42.5	1852	36.2	1256	6.3	596
Thomas	45.9	2410	38.9	1957	7.0	452





22 August, 1914.

## Scottsbluff-

## After Effects of Fall Irrigation (continued).

These results each show a constant and rather marked increase in yield on the land which had been fall irrigated, substantiating the conclusion supported by the results obtained during the three years when the fall irrigation experiments were carried on. In these experiments, the average yield of wheat, oats, barley, potatoes, sugar beets, and corn was 16 percent higher on the fall irrigated land than on the land which was not fall irrigated. It was hardly expected that the beneficial effect of fall irrigation would be apparent in these two series this year. The fact that it was apparent, however, strengthens the conclusion previously arrived at.

## San Antonio.

During the week ending August 8, the maximum temperature was 104 and the minimum temperature was 69. Rain occurred on five days of the week, the total precipitation recorded being 3.49 inches.

Owing to the wet weather only a small amount of field work was done. When field work was possible, weeding, cotton picking, and corn harvesting went forward.

Dr. D. A. Saunders was at the station on the 3rd of August, and harvested his corn varieties grown for the Texas Corn Growers' Association. Of the 49 strains and varieties grown, the selection of Laguna made at the station gave the highest yield.

Two plats of beans from A3 were harvested and the following yields were obtained:

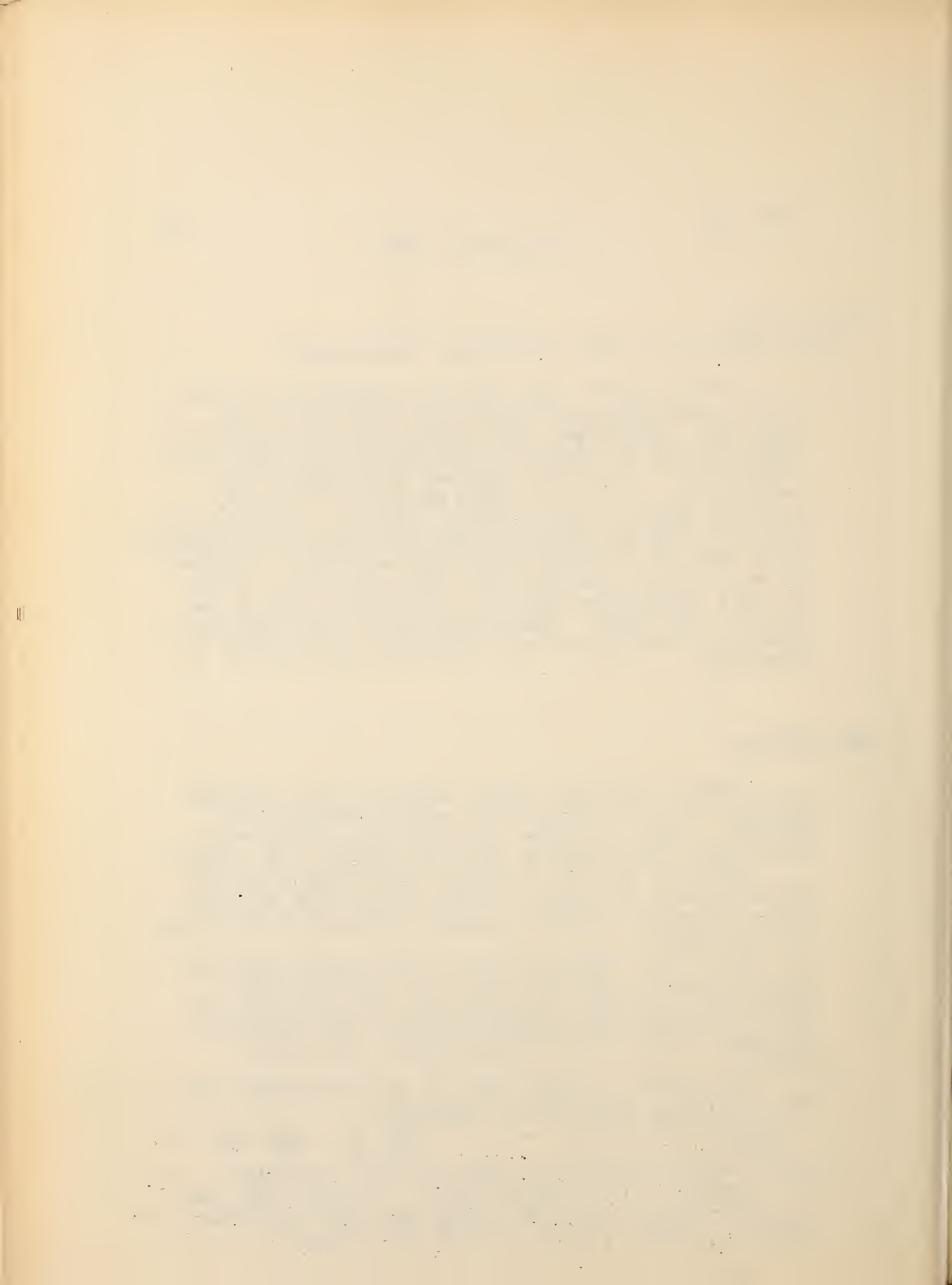
California Pink.....	456 lbs. per acre.
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Navy.....	240 " " "
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There was a rather poor stand of the Navy beans.

Messrs. P. V. Cardon and G. S. Meloy left the station on the 7th; the former starting for Washington, and the latter for Austwell, Texas.





22 August, 1914.

## FIELD NOTES.

## Truckee-Carson.

During the week ending August 8, the maximum temperature was 102, and the minimum temperature 52; there was no precipitation.

The following fields were irrigated:

F1 to 8, inclusive.

H1, 2, 3, 4, 10.

The forestry, Field C, was cultivated. The road along the north side of the Y series was improved. The laying of tile in the Y series was completed.

During the month of July the Churchill Creamery paid \$3,365.50 for 13,635 pounds of butterfat, an average price of about 24.7 cents.

The yields of the second cutting of alfalfa varieties on H18 were as follows:

VARIETY	SERIES I	SERIES II	TOTAL
Caucasian	66	68	134
Arabian	31	30	61
Peruvian	87	69	156
Grimm	93	76	169
Sand Lucerne	74	66	140
Turkestan	72	54	126
Montana	87	60	147
Canadian	82	66	148
Western Grown	83	64	147
Provence	64	67	131
Elche	66	58	124

## Huntley.

During the week ending August 8, the maximum temperature was 99, and the minimum temperature; there was no precipitation.

Hauling of the second crop of alfalfa was completed. The hay was all put up in good condition, there having been no rain to damage it.



22 August, 1914.

## FIELD NOTES.

Huntley (continued).

On August 8 the local Grange held a picnic at the farm, at which about one hundred people were present. Following a talk by Prof. Atkinson, of the Montana State College, the people were taken over the farm to view the work being carried on.

Mr. Beyer Aune and Mr. Reizeka visited the station during the week.

Irrigated Rotation Field.

Harvesting of grain was completed. Corn and potatoes were irrigated. Roadways were dragged and waste ditches cleaned. Some time was devoted to weeding.

The hogs in rotation 67 were weighed for the third period of ten days (July 27 - August 6), and the following results obtained:

Days	No. of hogs	Initial weight	Final weight	Gain per day	Gain for period	% Daily gain	Net daily returns per acre.	Lbs.pork per acre per day	Amt. Grain fed
*10	9	455	499.5	4.45	44.5	1.03	.876	17.8	92
**30	9	367.5	499.5	4.4	132	.94	.902	17.6	247

\* July 27-August 6, inclusive.

\*\* July 7-August 6, inclusive.

Scottsbluff.

The following yields of oats and wheat in the irrigation rotation experiment were reported by Mr.





22 August, 1914.

## FIELD NOTES:

## Scottsbluff (continued)

Holden, under date of August 12.

Yield of oats from Field K, 1914.

Plat No.	Rotation No.	Bushels per acre	Preceding Crops	
			1913	1912
I- 3	1	71.9	Oats	Oats
5	27	84.6	Potatoes	Oats-rye
6	65	69.0	Flax	Corn(hogged)
12	23	89.4	Beets	Oats-manure
15	25	83.6	Potatoes	Oats-manure
II- 5	31	86.4	Potatoes	Beets
11	61	82.6	Potatoes	Alfalfa
III- 5	30	78.8	Potatoes	Beets
11	60	83.7	Potatoes	Alfalfa
14	42	95.4	Alfalfa	Alfalfa
16	22	75.8	Beets	Oats
IV- 2	16	56.6	Corn	Oats
5	32	51.1	Corn	Beets
11	62	69.8	Corn	Alfalfa
15	44	94.9	Potatoes	Alfalfa
17	24	69.4	Potatoes	Oats
V-15	48	83.4	Wheat	Alfalfa
17	28	65.2	Wheat	Oats
Maximum	42	95.4	Alfalfa	Alfalfa
Minimum	32	51.1	Corn	Beets
Average	--	77.3	----	----

Yield of wheat from Field K, 1914.

III- 1	18	28.0	Beets	Wheat
18	5	18.8	W. wheat	W. wheat
IV-18	7	22.7	wheat*	wheat*
V-14	48	30.0	Alfalfa	Alfalfa
16	28	24.9	Oats	Wheat
18	3	25.8	Wheat	Wheat
* Straw returned.				
Maximum	48	30.0	Alfalfa	Alfalfa
Minimum	5	18.8	Wheat	Wheat
Average	--	25.0	---	---



29 August, 1914.

## FIELD NOTES.

## Scottsbluff.

During the week ending August 15, the weather continued extremely dry. On nearly all the farms dry spots can be found in the alfalfa fields. It seems almost impossible to get over the ground in such a manner to prevent some of the alfalfa from burning.

The water supply in the ditch has been very good so far, and the service given by the Reclamation Service this year has been excellent.

On the 14th the farmers of the Project gave a picnic celebrating the 20-year Extension Law. Everybody seems to rejoice over this extension, and a good feeling is evident everywhere.

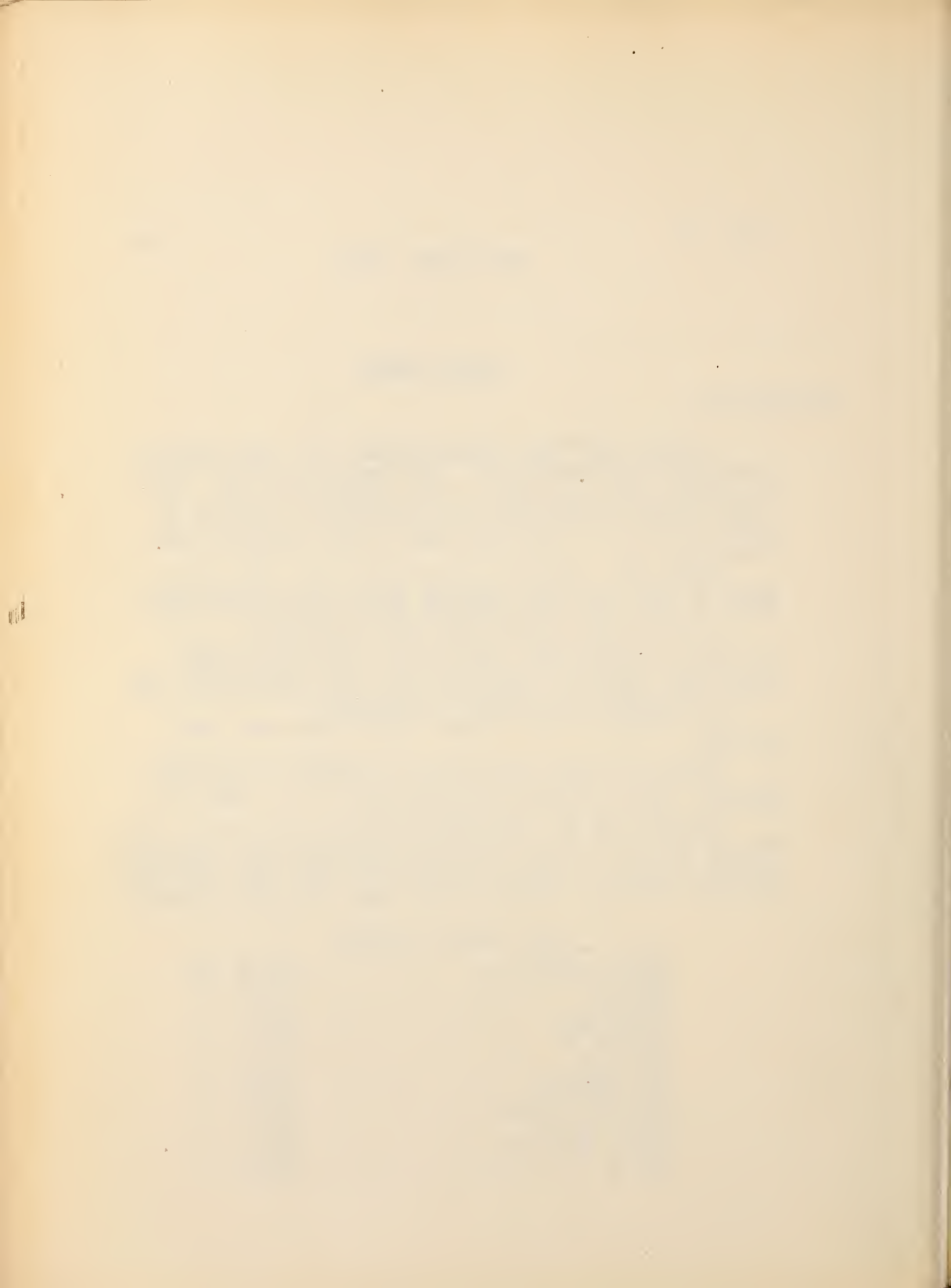
Threshing of all crops except flax was completed.

Nearly all of the men are engaged in irrigating the grain stubble, and putting it in shape for alfalfa seeding and fall plowing.

Nearly all of the barley yielded well this year, though the yields of the oats and wheat are somewhat disappointing. These yields were cut down considerably by the high winds at the time the grain headed.

## OAT VARIETY YIELDS.

Golden Rain.....	66.4	bus.
White Tartarian.....	67.1	"
Danish .....	70.0	"
Canadain .....	107.0	"
Dakota No. 4.....	66.4	"
Kherson .....	51.5	"
New Market .....	79.6	"
Swedish Select.....	87.5	"
Wisc. No. 1. ....	83.7	"
White Russian.....	76.4	"
Big 4 .....	94.3	"



## FIELD NOTES.

Scottsbluff (continued).

## BARLEY VARIETY YIELDS.

California Feed .....	49.7	bus.
Thomas .....	24.3	"
Fanconian .....	61.0	"
Scotch 4 Row .....	62.8	"
Minn. No. 105 .....	37.0	"
Mariant.....	53.9	"
No. 90 .....	29.1	"
Barbary 30393 .....	72.2	"
Hannchen ? .....	51.8	"
4 Row Hooded .....	10.4	"
2 Row Hooded .....	40.0	"
Smyrna .....	65.1	"
Moravian .....	91.6	"
Svanhals .....	64.0	"
Hulless No. 262 .....	37.5	"
Hulless Unknown .....	41.6	"

## WHEAT VARIETY YIELDS

Sambahara .....	44.8	"
Rystings Fife .....	29.6	"
Defiance .....	30.0	"
Ghirka.....	44.5	"
Galgalos .....	45.6	"
Dicklow.....	35.6	"

Yields in rate-of-seeding Hulless Barley test. (Triplicate plats).

Seeding rate per acre, pecks	Yield per acre, bus.
5	19.8
6	19.7
7	20.1
8	20.7
9	23.4





29 August, 1914.

## FIELD NOTES.

## Truckee-Carson

During the week ending August 15, the maximum temperature was 100, minimum temperature 54.

The laying of the system of tile drains in Field Y was completed. The tile was laid at an average depth of about 5 feet through plats Y1, 3, 4, 6, 13 and 15.

Messrs. Curtis and Leeper were at Stillwater during the last three days of the week threshing the grain varieties on Mr. Langford's farm. A report on the results of the trial will be sent later.

The gardens, Field B and plats Y1 to 10 were irrigated. Mr. Huttman, a painter and paperhanger, has been employed to paint the interior of the new bunk house, paper the laboratory and the Superintendent's house, and paint other buildings where needed.

## Belle Fourche.

During the week ending August 15, the maximum temperature was 102, minimum temperature 45, and precipitation .21 inch.

All the grain in Field A and the fall irrigation plats in Field P were threshed.

The threshing of the plats in Field B was completed.

The oats on Fields I, K and O were threshed.

The corn and potatoes in Field A and the corn and potatoes in the fall irrigation plats in Field P were cultivated.

Plat III-29 in Field A, and a number of plats in Field B were plowed.

The oats plats II-22 and III-13 were sown to alfalfa in Field A. The corn plat II-26 was sown to winter wheat, and the oat plat I-41 to rye.

The oat stubble on Fields I and K was sown to alfalfa.



## FIELD NOTES.

## Belle Fourche (continued).

The sixth irrigation of the alfalfa plats in Field A was started and completed excepting a few plats; alfalfa on the grounds was irrigated.

The grain in the experiments conducted by the Office of Cereal Investigations was threshed.

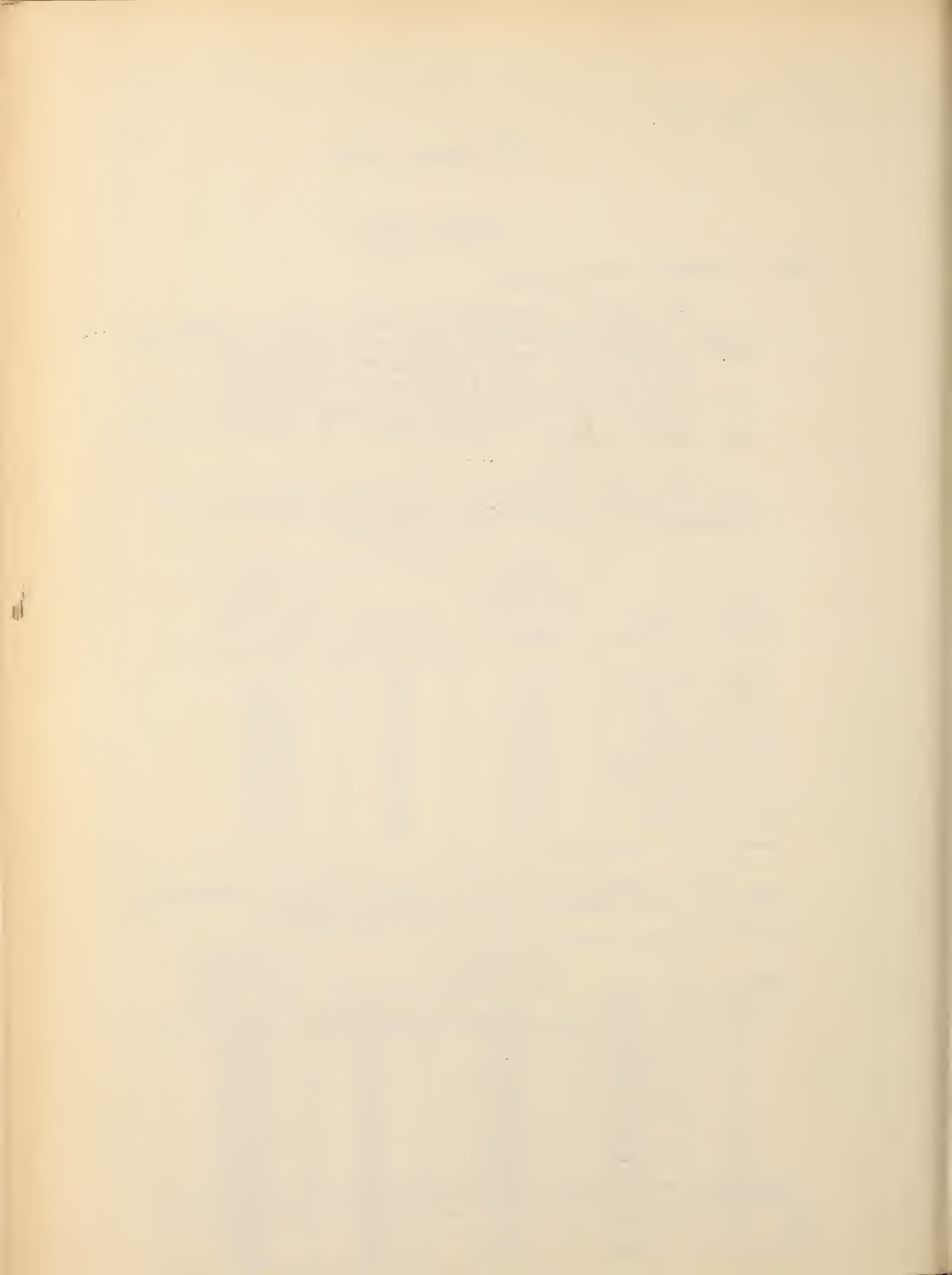
Messrs. T. H. Kearney and H. L. Shantz visited the station August 8 and 9.

The following table shows the yields of the nurse crop in the manner-of-seeding alfalfa experiment, started in 1914-Field A.

Plat No.	Nurse Crop	Yield of grain per acre, Lbs.	Weight per bu.	Yield of straw per acre, Lbs.
II-40	Wheat	33	58	3576
II-45	Wheat	29.8	57	3088
II-49	Oats	62.4	32	4240
III-46	Oats	47.1	30	4532
II-50	Barley	56.4	60	2408
III-47	Barley	33.8	60	1616
II-51	Flax	18.6	54	1592
III-48	Flax	10.7	54	880

The yields of wheat on the irrigated rotations, Field A, are shown in the following table.

Rotation No.	Plat No.	Yield of grain per acre, Bus.	Weight per bu.	Yield of straw per acre, Lbs.
3	I-46	19.2	60	1368
3a	III-28	42	59	3680
5	III-29	39.6	59	3304
7	I-50	21.8	60	1608
7	III-27	32	59	2040
18	I-24	28.6	58	2168
28	I-42	22.1	59	1592
48	II-21	37	58	2776
Average		30.2	59	2442
Max. 3a	III-28	42	59	3680
Min. 3	I-46	19.2	60	1368





## FIELD NOTES.

Belle Fourche (continued).

The yields of flax on the irrigated rotations, Field A, were as follows:

Rotation No.	Plat No.	Yield of grain per acre, Bus.	Weight per bu.	Yield of straw per acre, Lbs.
9	I-52	7.5	54	686
9a	III-26	20.7	54	1520
65	III-18	21.4	54	1800
66	II-24	15.7	54	1400
Max. 65	III-18	21.4	--	1800
Min. 9	I-52	7.5	--	686
Av. --	---	16.3	--	1351

The yields of oats on the irrigated rotations, Field A, were as follows:

Rotation No.	Plat No.	Yield of grain per acre, Bus.	Weight per bu.	Yield of straw per acre, Lbs.
1	I-44	25.5	35	1944
1a	III-25	103.3	37	3612
16	I-23	74.5	34	3376
22	I-30	77.5	35	1520
23	I-32	74.8	35	2644
24	I-35	73.6	35	2684
25	I-37	52.7	35	3760
27	I-41	77.7	35	2472
28	I-43	26.3	35	1916
30	I-18	93.5	38	2328
31	I-21	90	36	3200
32	III-12	92.2	36	2648
42	I-7	61.1	30	3404
44	III-22	109.6	35	3612
48	II-22	105.3	36	3584
60	I-14	94.6	35	3332
61	II-18	100.4	35	2268
62	II-12	103.7	35	3280
65	III-13	84.8	35	2524
Max. 44	III-22	109.6	35	3612
Min. 1	I-44	25.5	35	1944
Aver. --	----	80.0	35.6	2852



29 August, 1914.

## FIELD NOTES.

## Belle Fourche (continued)

The two winter wheat plats on the irrigated rotations, Field A, yielded as follows:

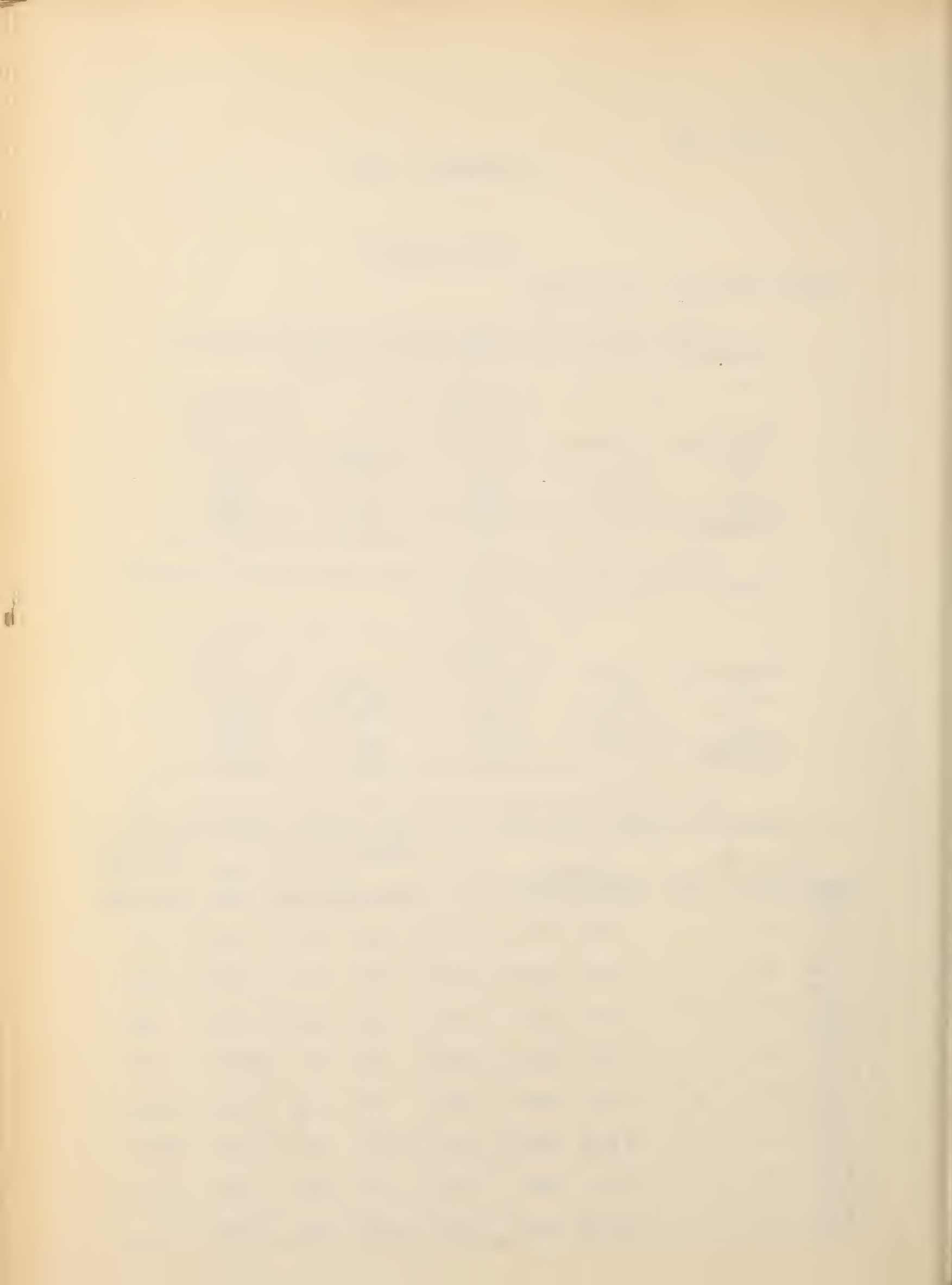
Rotation No.	Plat No.	Yield of grain per acre, Bus.	Weight per bu.	Yield of straw per acre, Lbs.
5	I-48	29.4	62	2048
66	II-27	16.4	62	1496
Average	---	22.9	62	1772

The two barley plats on the irrigated rotations, Field A, yielded as follows:

Rotation No.	Plat No.	Yield of grain per acre, Bus.	Weight per bu.	Yield of straw per acre, Lbs.
10	II-47	22.6	48	1272
66	II-25	31.7	48	1868
Average	-----	27.1	48	1570

The following table shows the gains made by the hogs on alfalfa pasture for each period since May 20.

Dates	No. of days	No. of hogs	Weights		Gains			Corn fed	Lbs. pork per acre per day
			Initial	Final	Total	%Daily	Per day per hog		
2/20-6/1	12	6	620.0	704.0	84.0	1.08	1.16	230.0	28
6/1-6/13	12	4	462.0	532.0	70.0	1.18	1.45	200.0	23.2
6/13-6/22	9	4	532.0	534.0	2.0	.03	.055	95.4	.88
6/22-7/2	10	4	534.0	546.0	12.0	.21	.3	106.8	4.8
7/2-7/16	10	8	410.0	440.5	30.5	.71	.38	82.0	12.16
7/16-7/25	9	8	440.5	485.0	44.5	1.07	.61	79.2	19.76
7/25-8/4	10	6	366.0	403.0	37.0	.96	.61	73.2	14.8
8/4-8/14	10	6	403.0	440.5	37.5	.89	.62	80.6	15





29 August, 1914.

## FIELD NOTES.

## Belle Fourche (continued).

During the ten-day period from August 4 to August 14, the hogs gained a total of 37.5 lbs., which at 7 cents, is worth \$2.62. During the ten-day period the hogs were fed 80.6 lbs. of corn, which, at \$1.70 per cwt., cost \$1.37. The net gain from the quarter acre was therefore \$1.25, of \$6.00 per acre, which equals \$0.60 per acre per day.

The following table shows the yields of hay in the method-of-seeding alfalfa experiment started in 1914.

Plat No.	Seeding		Yield per acre, tons.
	Time	Method	
II-37	5/8/14	Without nurse crop (Early)	.44
II-41	"	Without nurse crop (Early)	1.32
II-39	"	Nurse crop cut for hay.	2.18
II-44	"	Nurse crop cut for hay.	2.18

During the week ending Aug. 22, the maximum temperature was 102, minimum temperature, 50, and precipitation, .45 inch.

The alfalfa seeded in I and K, and the sugar beets in the irrigated rotations were irrigated.

In the dry land rotations the fall plowing was completed, except the fall plowed corn ground. The corn was harvested and shocked.

The balance of the week was devoted to cleaning out weeds.

The following table shows the yields of grain and straw obtained with wheat, oats, barley and flax in the fall irrigation experiment in Field P. The figures in the column headed "A" relate to the fall irrigated plats; those under "B" relate to the plats





29 August, 1914.

## FIELD NOTES.

Scottsbluff (continued).

which were not fall irrigated:

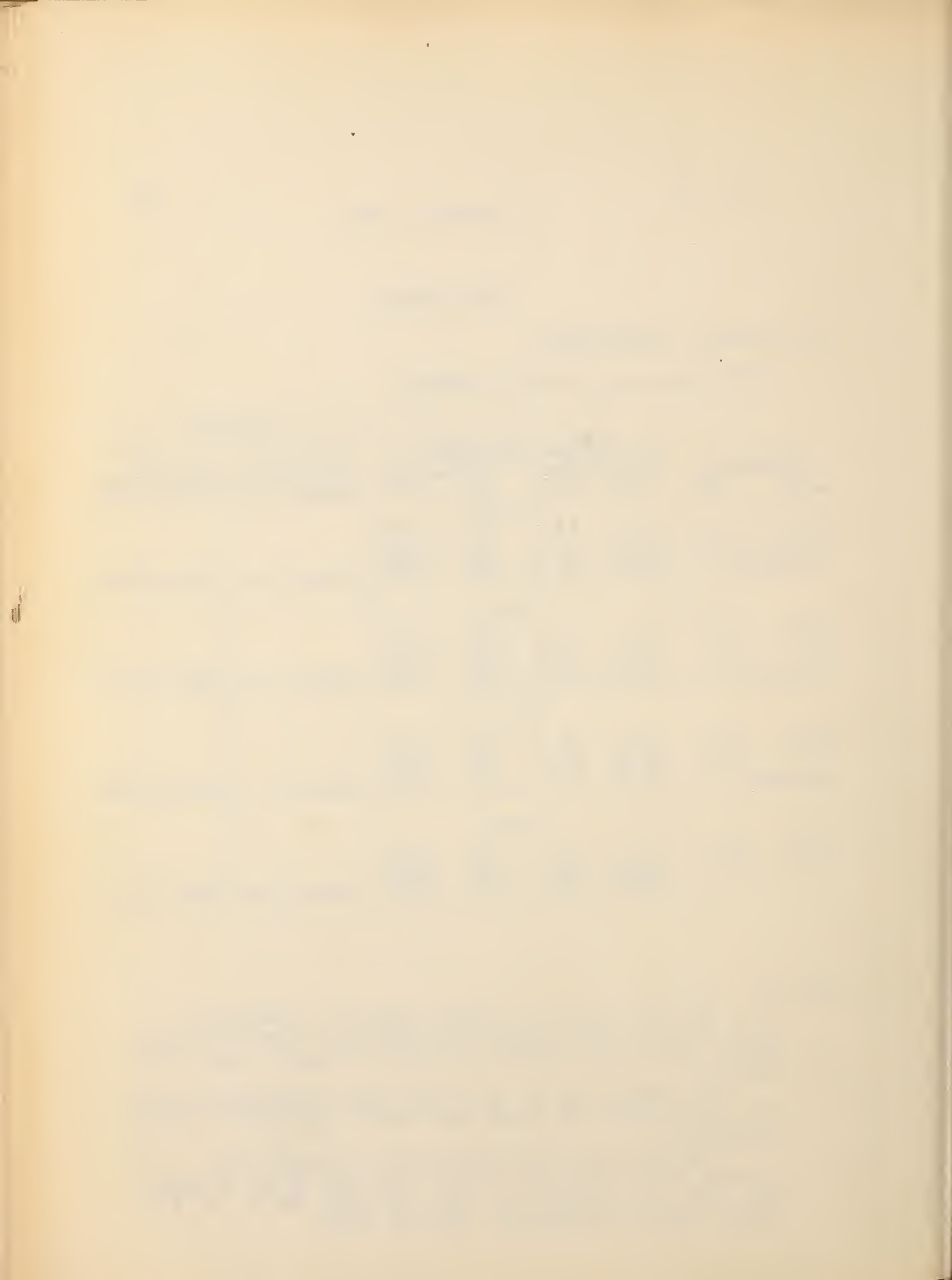
Plat No.		Yields per acre				Average difference in favor of fall irrigation	
A	B	Grain, Bus.	Straw, Lbs.	A	B	Grain, Bus.	Straw, Lbs.
(Wheat)							
II-13	I-13	31.5	24.6	1810	1420		
IV-13	III-13	38.5	19.3	1790	1160		
Average....		30.0	21.9	1800	1290	Plus 8.1	Plus 510
(Oats)							
II-7	I-7	47.8	40.0	3570	1620		
IV-7	III-7	39.0	47.8	1750	2270		
Average....		43.4	43.9	2660	1945	Minus .5	Plus 715
(Barley)							
II-11	I-11	29.1	28.7	1400	1320		
IV-11	III-11	26.8	26.0	610	1850		
Average....		27.9	27.3	1005	1585	Plus .6	Minus 580
(Flax)							
II-9	I-9	17.0	17.4	1280	1860		
IV-9	III-9	10.5	14.8	930	1200		
		13.7	16.1	1105	1030	Minus 2.4	Plus 7.5

Huntley.

During the week ending August 15, grains in both dry land and irrigated rotations were threshed. Corn, beets and alfalfa in Fields A and B were irrigated.

The season up to date has been unusually favorable for beets and corn, and these crops are in good condition.

Visitors at the farm during the week were J. A. Scilly, Agriculturist of the Billings Sugar Company, Mr. Bien, of the Reclamation Service, Mr. R. H. Field, Project Engineer, and Mr. Burr.



29 August, 1914.

## FIELD NOTES.

Huntley (continued).

Irrigated Rotations.

Part of the beet and alfalfa plats were irrigated the latter part of the week.

Oats and wheat were threshed. Results obtained are given below:

Spring Wheat

Plat	Preceding Crop	Bus. per acre	
II-7	Wheat (cont.)	35.6	
II-8	*Wheat (cont.)	32.93	
V-3	Beets	40.73	Av. 32.53
V-17	Oats	22.93	
V-23	Wheat (cont.)	30.46	
* Straw returned.			

Oats

Plat	Preceding Crop	Bus. per acre	
III-3	Potatoes	102.87	
III-9	Potatoes	108.37	
III-15	Potatoes	94.50	
IV-5	Potatoes	115.00	
IV-7	Alfalfa	83.75	
IV-12	Potatoes	105.25	
IV-17	Potatoes	87.00	
IV-20	Corn	75.25	Av. 90.49
V-2	Corn	78.50	
V-7	Beets	109.50	
V-10	Potatoes	102.75	
V-15	Beets	93.75	
V-18	Wheat	62.50	
V-18	Potatoes	82.62	
V-21	Oats (cont.)	45.75	

One of the spring pigs died on August 14 as a result of castration. The remaining eight were weighed





29 August, 1914.

## FIELD NOTES.

Huntley (continued).

on the 16th, and the following results obtained.

Days	No. of hogs	Initial weight	Final weight	Gain per day	Gain for period	% Daily gain	Net daily returns per acre.	Lbs. pork per acre	Amt. Grain fed
10	8	430.5	486.5	5.6	56	1.24	1.22	22.4	88

Three of the fall pigs that were in rotation 67 until July 7 were sold for slaughter. From July 7 to August 16 they were on alfalfa pasture and received a 4% corn ration. The results for this period are given below:

Days	No. of hogs	Initial weight	Final weight	Gain per day	Gain for period	% Daily gain	Net daily returns per acre.	Lbs. pork per acre.	Amt. Grain fed
40	3	527.5	685.0	3.93	157.5	.66	.435	78.6	995

During the week ending Aug. 22, harvesting of wheat and oats varieties in Field C was completed. Irrigating of alfalfa and sugar beets in Fields A, B and C was completed. This will probably be the last irrigation for the season.

Yields of grain in Field M (Worden) were as follows:

Crop	Plat	Yld. per plat	Yd. per acre
W.Wheat	MI-2	178	11.8
W.Wheat	5	153	10.2
S.Wheat	7	142	9.4
Oats	8	196	24.5
Barley	9	147	12.3
S.Wheat	13	161	10.7
Oats	14	200	25.0
W.Wheat	16	74	7.4
W.Wheat	MI-A-2	107	7.1
W.Wheat	5	54	3.6
S.Wheat	7	92	6.1
Oats	8	147	18.4
Barley	9	43	3.6
S.Wheat	13	66	4.4
Oats	14	88	11.0
W.Wheat	16	58	5.8



29 August, 1914.

## FIELD NOTES.

Huntley (continued).

Plats MI-2, 5, 7, 8, 9 were on land cropped to winter wheat in 1913, and on which two crops of rye as green manure had been plowed under in 1911 and 1912. Plats MI-13 and 14 were cropped to wheat and oats respectively in 1913 and sugar beets in 1912, and had received rye green manure treatment in 1911 and 1912. Plat MI-16 was cropped to oats in 1913 and had received flooding and cultivating treatment in 1911 and 1912.

All of series MI-a was broken from sod Aug., 1913. All plats except those planted to winter wheat were irrigated July 6; winter wheat received no irrigation. In all cases the stand and growth of the crops in Field M-I were much more uniform than in Field MI-a and show clearly the beneficial effect of previous treatments. The low yields in all cases were no doubt due to the effects of the high ground water level earlier in the season. Depths to ground water in the wells on this tract on August 15 were as follows:

<u>Well No.</u>	<u>Depth to water, ft.</u>	<u>Difference since August 1.</u>
A-1	3.71	.66 fall
2	3.86	.54 "
3	3.82	.28 "
B-1	3.61	.28 "
2	3.62	.39 "
Average	3.72	

Prof. F. B. Linfield, Director of the Montana State Experiment Station, visited the farm on August 22.

Irrigated Rotations.

Wheat and oat stubble were disked in order to germinate shattered grain and weed seed.

Irrigating of beets and alfalfa was completed





29 August, 1914.

## FIELD NOTES.

## Huntley (continued).

the fore part of the week. In all probability this will be the last irrigating done in Field K this season.

Some time was devoted to hoeing weeds.

Rye was planted in rotation 27 and irrigated.

## Scottsbluff.

During the week ending August 22, the weather continued very dry, although there were two dry thunder storms. Some of the non-irrigated crops are suffering considerably for the lack of moisture. The irrigated crops are doing very nicely.

The third crop of alfalfa hay was cut except that on Field K. The third crop is about three-fourths as large as the second cutting. All of the stubble seeding of alfalfa has been completed, and unless it rains, some of this may have to be irrigated.

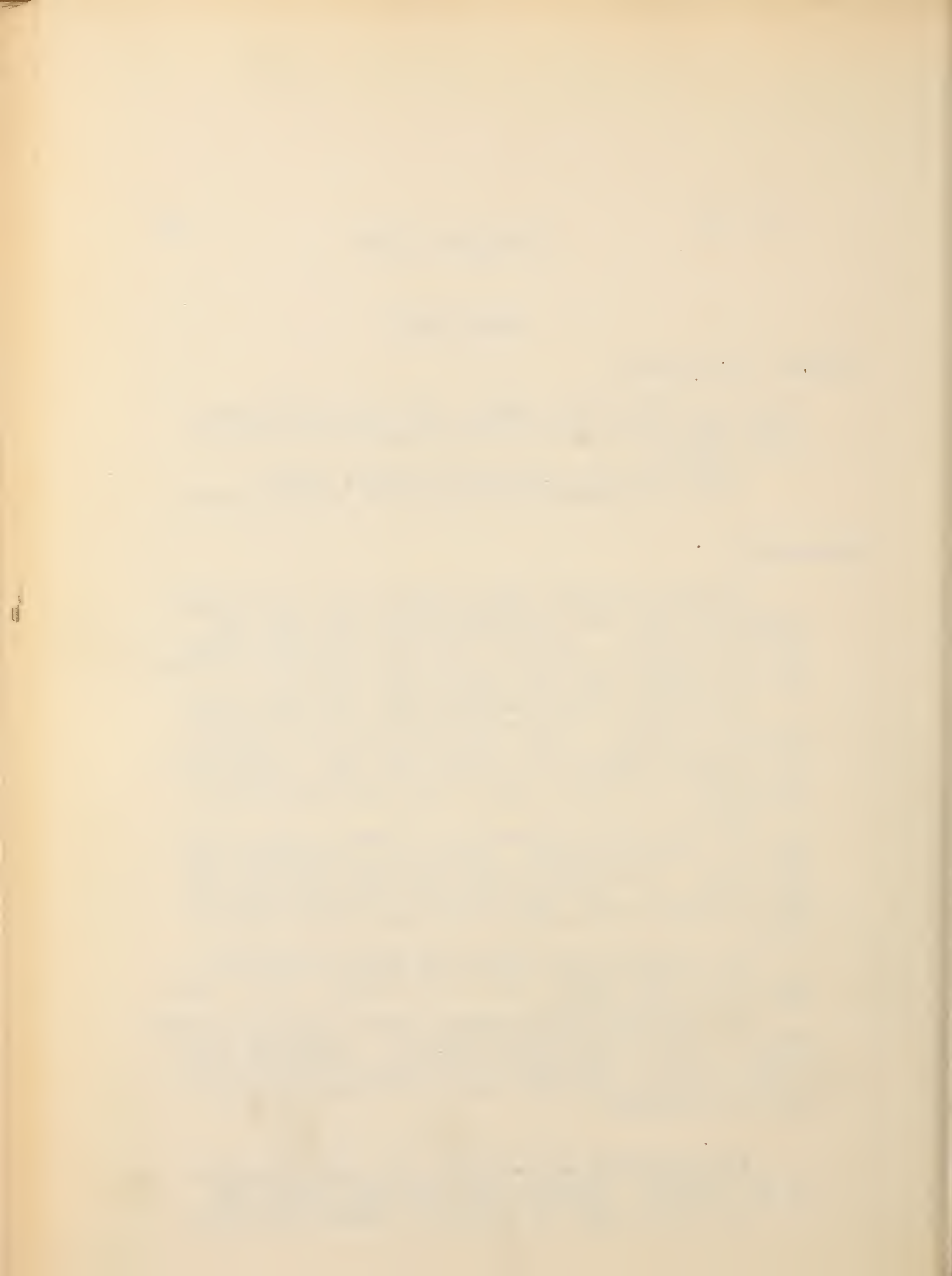
It was found necessary to fence in the south half of series V-VI-VII, field D, as a pasture for the cows. This gives about one-half acre of very good pasture. The cows seem to do much better on this larger pasture than they have on the smaller area.

The Ayrshire bull from the State University arrived at the farm. He is an October, 1913, calf, and is of good growth.

On the 14th the Tri-State ditch reported another break in their canal near Morrill. Although this break is not as serious as the first one, it is in a bad location, and the soil is very poor for repairing purposes.

The following hog weights have been reported by Mr. Holden. Some of the hogs were taken off as they showed signs of cholera. Those now being





## FIELD NOTES.

. Scottsbluff (continued).

carried in the experiment are apparently all right.

Hog. No.	Weight		Gain, Total	Pounds Daily	% Daily Gain
	July 8	July 23			
(Rotation 65, 2% corn).					
138	54	65	11	.73	1.24
139	56	67	11	.73	1.20
140	52	63	11	.73	1.28
141	54	62	8	.53	.92
142	59	70	11	.73	1.14
143	45	53	8	.53	1.09
144	57	67	10	.67	1.09
145	47	57	12	.80	1.29
146	86	100	14	.93	.98
147	79	92	13	.87	1.02
Total	589	698	109	7.26	1.05
(Lot 1, No grain)					
94	112	116	4	.26	.23
127	55	66	11	.73	1.22
132	98	108	10	.67	.65
133	36	42	6	.40	1.03
134	15	15	0	.00	0
135	51	59	8	.53	.97
136	29	34	5	.33	1.07
Total	396	440	44	2.92	.70
(Lot 2, 1% corn).					
130	86	102	16	1.06	1.14
118	102	112	10	.67	.37
120*	15	Taken off	7/13	-	-
121*	18	" "	"	-	-
122	34	43	9	.60	1.57
123	47	55	7	.46	1.05
124	34	43	9	.60	1.57
125	35	44	9	.60	1.53
126	99	109	10	.67	.64
119#	79	84	5	1.00	.41
Total	470	592	75	5.00	1.55

\* Showed signs of cholera and taken off July 13.

# Weight July 18, when this hog was added.



29 August, 1914.

## FIELD NOTES.

## Scottsbluff (continued).

Hog No.	Weight		Gain, Total	Pounds Daily	% Daily Gain
	July 8	July 23			
(Lot 3, 3% corn)					
92	103	116	13	.87	.79
93	78	102	24	1.60	1.78
72	108	122	14	.93	.81
106*	15	Taken off	7/13	-	-
107	15	" "	"	-	-
108	17	" "	"	-	-
109	19	" "	"	-	-
110**	56	" "	7/23	-	-
111	29	36	7	.46	1.45
112	33	42	9	.60	1.62
113	42	51	9	.60	1.30
114	54	65	11	.73	1.24
115	58	68	10	.67	1.06
116	38	47	9	.60	1.42
137	95	108	13	.87	.86
X#	133	136	3	.60	.45
Total	760	893	122	8.13	1.07
* Showed signs of cholera and taken off July 13.					
** " " " " " " " 23.					
# Weight July 18, when this hog was added.					
(Lot 4, 2% ground barley)					
89	123	141	18	1.26	.91
97	43	53	10	.67	1.40
98	36	45	9	.60	1.49
99	51	61	10	.67	1.19
100	37	45	8	.53	1.31
101	42	50	8	.53	1.16
102	33	43	10	.67	1.77
103	31	43	12	.80	2.20
104	40	59	10	.67	1.24
105	116	131	15	1.00	.81
Total	561	671	110	7.40	1.20





29 August, 1914.

## FIELD NOTES.

Scottsbluff (continued).

HOGS ON ALFALFA PASTURE, SUMMARY.

	Rot. 65 2% corn	Lot 1 No grain	Lot 2 1% corn	Lot 3 3% corn	Lot 4 2% ground barley
No. of hogs ....	10	7	8*	11#	10
Pounds per acre					
July 8 .....	2366	1584	1880	3040	2244
July 23.....	2792	1760	2368	3572	2684
Total Gain.....	109	44	75	122	110
Total Gain per day.....	7.26	2.92	5.0	8.13	7.33
Gain per day per hog.....	.72	.42	.68	.79	.73
Pork per acre per day.....	29.04	11.68	20.00	32.52	29.32

\* Two pigs weighing a total of 33 pounds were taken from Lot 2 on July 13, showing signs of cholera. One hog weighing 79 pounds was added July 18.

# On July 13 four pigs weighing a total of 66 pounds and on July 23 one weighing 56 pounds were taken from Lot 3. One hog weighing 133 pounds was added July 18.

Yuma.

During the week ending August 8, the maximum temperature was  $113\frac{1}{2}$ , minimum temperature 70, and greatest daily range 40.

One-half mile of fence on the west side of the farm was constructed.

Grain sorghum on C-38 was thinned. Date nurseries, B orchard, data and eucalyptus road plantings, and portions of irrigation system were hoed.

The third cutting of alfalfa, Sudan and Tunis grass on A1 and 2, was harvested.

The summer pruning of fig orchard, C-8 and 17 was begun late in the week.

Blackbirds and white-winged doves are attacking the early grain sorghum plantings with such per-



29 August, 1914.

## FIELD NOTES.

Yuma (continued).

sistency that yield tests will be eliminated. The birds feed on the grain before it matures sufficiently to harvest.

The harvest of the third crop of alfalfa in the time-of-cutting experiment in Series E was completed. Samples have been taken of each crop during the season to determine the percent of water lost in drying. The table below gives the losses determined in all three crops; each figure being the average of a duplicate determination.

Plat No.	First Crop		Second crop		Third Crop	
	Date Cut	%Water lost	Date Cut	%Water lost	Date Cut	%Water lost
1	4/18	72.5	5/19	79.4	6/26	68.8
5	"	75.6	"	78.1	"	71.6
9	"	74.4	"	78.4	"	70.0
2	4/25	72.8	5/27	71.6	7/3	73.1
6	"	73.5	"	73.8	"	71.9
10	"	71.6	"	72.8	"	72.8
3	5/2	73.4	6/2	76.6	7/10	71.3
7	"	55.6	"	76.3	"	70.4
11	"	73.1	"	76.9	"	71.2
4	5/9	69.7	6/11	73.4	7/17	74.1
8	"	61.3	"	74.4	"	75.3
12	"	67.2	"	75.7	"	73.4
Maximum		75.6		79.4		75.3
Minimum		55.6		71.6		68.8
Average		70.0		75.6		71.9

All first cutting Sudan grass yields are surprisingly and unaccountably low this season, as compared with 1913 yields.

The deciduous variety orchard which was planted in part during the early spring on 1913 and increased in 1914 is developing in an interesting manner. This block of land, B-23 to 32, is one of the best fields on the Experiment Farm, although the same general soil variations occur; also, a few alkali spots have thus far made the starting of trees in this place a failure. Borders 23 and 24 were





29 August, 1914.

## FIELD NOTES

## Yuma (continued).

newly leveled land planted to orchard trees the first season.

In the peach variety block, trees of eleven feet in height and rugged in proportion have developed in eighteen months. Pears, apricots, and plums have flourished nearly as well.

The most notable development of any fruit in this collection is the Zizyphus jujubae, or Chinese date. One variety in particular, a budded tree, S.P.I. No. 22668, has grown in eighteen months from a small sapling to a plant, nine and one-half feet in height; six feet having grown during the past five months. The first fruits are now maturing at a size of four inches by five inches in circumference.

The flowers are continually setting, as this is a form of tree that bears fruit entirely on the new growth, flowers emerging on the small branches shortly following the terminal bud.

Other interesting developments are the vigorous growth of apple trees and sweet cherries with no apparent dislike for the intense heat. A blighting of these has been expected at any time this summer. Sweet cherries, headed low, have reached a height of eight feet in eighteen months growth.

Persimmons are slow to start, but seem content when once established. Japanese varieties are putting out flowers during August, without any other apparent indications of distress, however.

Amygdalus davidiana has made a wonderful growth this season. Pecans are growing slowly. Persian walnuts are behaving peculiarly, but have not blighted during the intense heat.

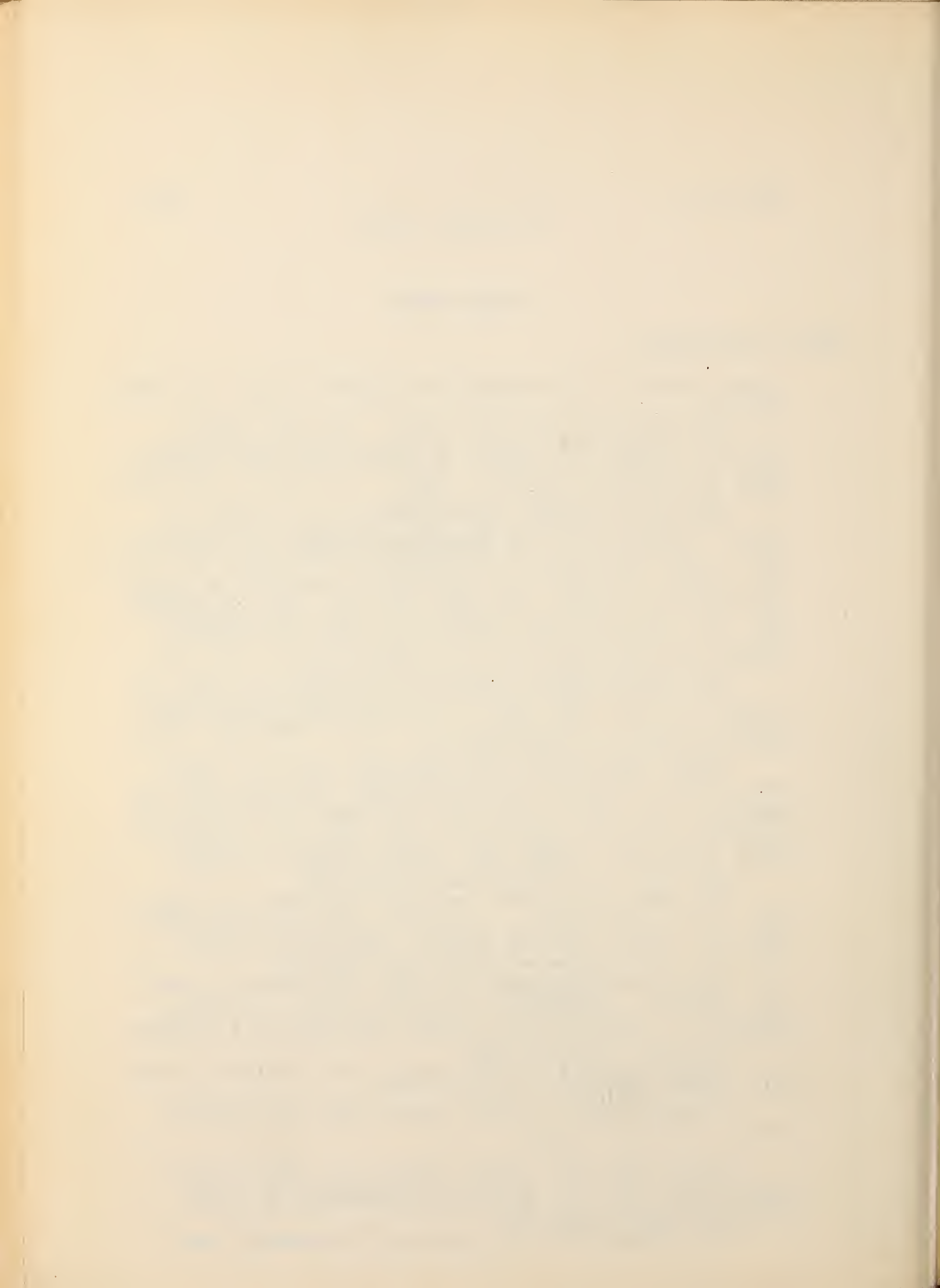
Pistachia vera and Chinenses are developing rapidly toward typical trees.

No doubt none of these trees have yet reached the ground water plane.

During the week ending August 15, the maximum temperature was 107, minimum temperature 61, and greatest daily range 46.

Two carpenters were employed for several days





29 August, 1914.

## FIELD NOTES.

Yuma (continued).

laying shingles on the office building.

Miscellaneous cultivation of nurseries, late plantings of cotton, cowpeas and grain sorghums was carried on during the week. Three men were employed hoeing ditch banks and borders and other weeds and grasses.

Hemp for fibre was harvested on C-20. Alfalfa, D43, second cutting of Sudan grass on A3 and 4, and C25 were also harvested. The B orchard was furrowed and irrigated. Summer pruning of fig orchard was completed. A limited number of trees in the hybrid seedlings fig orchard are fruiting and a few have ripe fruit; however, most of the fruits are not sufficiently mature to indicate the number which will be carried through to ripening without insect fertilization.

A few fruits of the profichi crop of capri-figs were brought into the orchard last spring with hope of establishing the Blastophaga, but no indications are now apparent that the introduction was successful.

Mr. H. N. Vinall, of the Office of Forage Crop Investigations, visited the station on the 14th.

## COOPERATIVE INVESTIGATIONS IN ANIMAL INDUSTRIES.

The cooperative committee, consisting of Messrs. Chilcott, Scofield, and Farrell, of the Bureau of Plant Industry, and Rommel and Rawl, of the Bureau of Animal Industry, has recently submitted to the Secretary a report recommending that estimates aggregating \$87,500 be submitted to Congress, with a view to the establishment, during the fiscal year 1916, of cooperative investigational work in animal industries at certain of the field stations maintained by the Office of Dry Land Agriculture and Western Irrigation Agriculture.

The committee recommended the establishment of cooperative investigational work as follows:

Dairying at Dalhart, Ardmore, Belle Fourche and



29 August, 1914.

Cooperative Investigations (continued).

Huntley.

Hog production at Dalhart, Ardmore, Belle Fourche, Huntley, Yuma, Truckee-Carson and Scottsbluff.

Sheep production at Huntley, Truckee-Carson and Scottsbluff.

The fundamental feature of this investigational work will be the development of methods whereby the settlers can profitably dispose of their crops through the production of livestock, and whereby certain of the livestock industries on the farms can be correlated with the utilization of the adjacent open range.





5 September, 1914.

## FIELD NOTES.

## Scottsbluff.

During most of the week ending Aug. 26, the men were engaged in doing odd jobs about the farm. During the preceding two weeks it has been quite cloudy, and there was a sprinkle of rain nearly every day. This rain was not enough to register a trace, but kept the hay in a moist condition, and no work was done with the hay until the 26th.

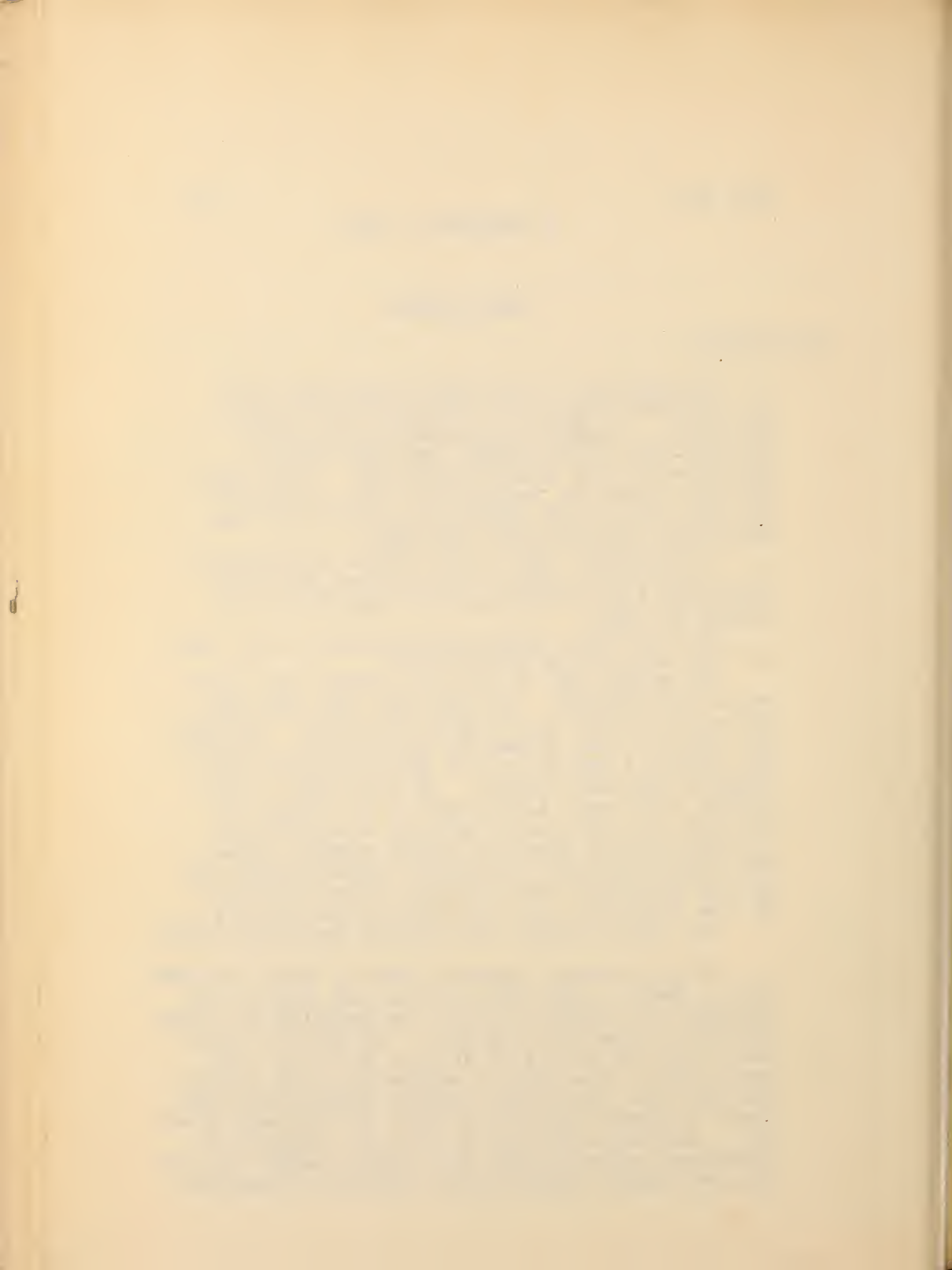
The greater part of the third cutting hay is in the stack, and if the weather continues favorable the cutting will be completed in a couple of days.

Two men were employed a portion of the time in fall irrigating the stubble.

On August 19, 20 and 21, alfalfa was seeded in the stubble. As the soil was very dry, it was necessary to irrigate the land. Series IV, Field A, was seeded to alfalfa and irrigated up; Series V and VI of the same field were irrigated and then seeded. So far there is but little difference in the way it is coming up; in fact, the dry seeded alfalfa was coming up a little better when the cloudy weather began. The cloudy weather prevented a rapid drying out of the irrigated land, and was of material aid to the land that was irrigated before seeding.

Mr. Cole visited the station during the week.

The following quotation from a letter written by Mr. Knorr, under date of Aug. 28, will be of interest in connection with the question of using alfalfa in pasture mixtures. It will be noted that only two pounds of alfalfa seed per acre were used in the pasture mentioned by Mr. Knorr, and that the individual alfalfa plants were only about 4 inches high at the time the cow was bloated. Instances similar to this are frequently reported, and they show the extreme danger of having even small quantities of alfalfa in pastures



5 September, 1914.

## FIELD NOTES.

Scottsbluff (continued).

used by cows:

"This morning we lost one of our dairy cows from bloat. The cows were on pasture on the field that contains the grass and alfalfa mixtures, having alfalfa seeded with the grass at the rate of 2 pounds per acre. The individual alfalfa plants are standing at this time about 4 inches high. The animals have been on this pasture off and on without any ill effect, except when we first purchased the animals and turned them on this pasture. Since then they have been alright. This bears out the conclusion reached by the Colorado Experiment Station. This station lost a number of cows last winter where from  $1\frac{1}{2}$  to 3 pounds of alfalfa seed were used to the acre".

The hogs in the alfalfa pasturing experiments were weighed August 22. The table below gives the results obtained during the 15-day period from Aug. 7 to Aug. 22.

INDIVIDUAL WEIGHTS.Rotation 65, 2% corn.

Hog No.	Weight		Gain		
	Aug. 7	Aug. 22	Total	Daily	% Daily
138	69	75	6	.40	.56
139	79	88	9	.60	.72
140	74	80	6	.40	.52
141	76	83	7	.46	.59
142	81	88	7	.46	.55
143	66	74	8	.53	.76
144	84	97	13	.86	.96
145	73	83	10	.66	.86
146	112	126	14	.93	.79
147	105	117	12	.80	.72
Total	819	911	92	6.10	.71





5 September, 1914.

## FIELD NOTES.

Scottsbluff (continued).

Lot 1, no grain.

Hog. No.	Weight		Gain		
	Aug. 7	Aug. 22	Total	Daily	% Daily
94	124	120	-4	-	-
127	76	78	2	.13	.08
132	119	118	-1	-	-
133	47	50	3	.20	.42
134	13	13	-	-	-
135	65	67	2	.13	.20
136	39	40	1	.06	.17
Total	483	486	3	.52	.04

Lot 2, 1% corn.

130	112	120	8	.53	.47
118	120	124	4	.26	.21
122	49	55	6	.40	.77
123	65	73	8	.53	.77
124	48	54	6	.40	.80
125	53	59	6	.40	.71
126	114	119	5	.33	.29
119	100	105	5	.33	.32
Total	661	709	48	3.18	.47

Lot 3, 3% corn.

92	126	138	12	.80	.60
93	112	135	13	.86	1.24
72	135	155	20	1.33	.93
111	50	66	16	1.06	1.87
112	53	70	17	1.13	1.87
113	64	80	16	1.06	1.49
114	79	96	17	1.13	1.30
115	81	91	10	.66	.77
116	57	75	18	1.20	1.85
137	119	137	18	1.20	.94
X	155	171	16	1.06	.65
Total	1031	1214	183	11.49	1.09



THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

RESEARCH REPORT

ON THE KINETICS OF THE  
REACTION OF HYDROGEN PEROXIDE  
WITH FERROUS SULFATE

BY  
J. H. COLEMAN  
AND  
R. M. WATSON

RECEIVED  
JANUARY 15, 1954

CHICAGO, ILLINOIS

5 September, 1914.

## FIELD NOTES.

Scottsbluff (continued).

Lot 4, 2% ground barley.

Hog No.	Weight		Gain		
	Aug. 7	Aug. 22	Total	Daily	% Daily
89	159	172	13	.86	.46
97	63	70	7	.46	.70
98	56	69	13	.86	1.40
99	70	92	22	1.46	1.84
100	53	61	8	.53	.94
101	57	69	12	.80	1.28
102	50	64	14	.93	1.65
103	52	64	12	.80	1.39
104	70	80	10	.66	.89
105	149	162	13	.86	.56
Total	779	903	124	8.22	.99

Summary.

	Rot. 65 2% corn	Lot 1, No grain	Lot 2, 1% grain	Lot 3, 3% corn	Lot 4 2% ground barley
No. of hogs	10	7	8	11	10
Pounds per acre					
Aug. 7	3276	1932	2644	4124	3116
Aug. 22	3644	1944	2836	4856	3612
Total gain .....	92	3	48	183	124
" per day...	6.10	.52	3.18	11.49	8.22
Gain per day per hog.....	.61	.03	.49	1.04	.82
% Daily gain....	.71	.04	.47	1.09	.99
Perk per acre					
per day, Lbs..	24.52	.80	12.80	48.80	33.0

Belle Fourche.

During the week ending August 29, the maximum temperature was 90, minimum temperature 40.

All alfalfa in Field A, the corn in the irrigated rotations, and in O and P, and the pota-



5 September, 1914.

## FIELD NOTES.

Belle Fourche (continued).

in P were irrigated.

Plowing in C, the continuous crop in I, and the grain plats in A was completed.

The threshing of the variety grains on the dry land is very nearly completed.

Mr. Smith, of the Forest Service, visited the Station on the 24th, and Mr. Burr, of the Office of Dry Land Agriculture, visited the station on the 28th and 29th.

The following table shows the gains made by the hogs on alfalfa pasture for each period since May 20.

Dates	No. of days	No. of hogs	Weights		Gains			Corn fed	Lbs. pork per acre per day
			Initial	Final	Total	%Daily	per day per hog		
5/20-6/1	12	6	620.0	704.0	84.0	1.08	1.16	230.0	28
6/1-6/13	12	4	462.0	532.0	70.0	1.18	1.45	200.0	23.2
6/13-6/22	9	4	532.0	534.0	2.0	.03	.055	95.4	.88
6/22-7/2	10	4	534.0	546.0	12.0	.21	.3	106.8	4.8
7/2-7/16	10	8	410.0	440.5	30.5	.71	.38	82.0	12.16
7/16-7/25	9	8	440.5	485.0	44.5	1.07	.61	79.2	19.76
7/25-8/4	10	6	366.0	403.0	37.0	.96	.61	73.2	14.8
8/4-8/14	10	6	403.0	440.5	37.5	.89	.62	80.6	15
8/14-8/24	10	6	440.5	489.5	49.0	1.03	.81	88.1	19.0

Forty-nine pounds gain at 7 cents equals \$3.43. Eighty-eight and one-tenth pounds of corn at \$1.70 per hundred equals \$1.49, the value of the corn fed. \$3.43 minus \$1.49 equals \$1.94, the net profit from 1/4-acre for the ten day period. The net profit from an acre would be \$7.76, or \$0.77 per day.





5 September, 1914.

## FIELD NOTES.

## San Antonio.

During the week ending Aug. 22, the maximum temperature was 93, minimum temperature 71, and greatest daily range 24. The total precipitation was .19 inch.

For the most part the week was favorable for field work. The first picking of cotton on the rotation plats was completed, the average yield of seed cotton per acre obtained from 30 plats being 548.8 lbs. per acre. The highest yield was 926 lbs. and the lowest was 222 lbs. of seed cotton per acre.

Harvesting of corn on the rotation experiments was completed. The yields obtained are given in the following table:

Plat	Yield per acre, Bus.	Plants per acre	Plat	Yield per acre, Bus.	Plants per acre
A4-4	29.4	4652	B5-16	58.3	6508
A4-7	35.2	4570	B6-2	73.1	7656
A6-8	56.2	5444	B6-4	63.7	7024
A6-10	43.1	4844	B6-6	69.3	6516
A6-12	51.3	6134	B6-8	70.2	6288
A6-14	47.7	5356	B6-10	61.6	6324
A6-16	48.6	5420	B6-12	55.9	6132
A6-18	53.0	6308	B6-14	48.1	5432
B5-1	43.2	5340	B6-16	45.9	5760
B5-2	48.3	6472	B6-18	52.3	6464
B5-14	50.4	6612			
			Yield per Plants		
			acre, Bus. per acre		
Average.....			52.6	6002	
Maximum.....			73.1	7656	
Minimum.....			29.4	4652	

The highest yield of 73.1 bus. per acre was secured from Plat B6-2 which is in a two-year rotation of corn and cotton. The lowest yield of 29.4 bus. per acre was secured from Plat A4-4, which is in a rotation of corn alternated with summer fallow. There is considerable variation in stand on the various plats



5 September, 1914.

## FIELD NOTES.

## San Antonio (continued).

and the highest yields are from those plats having the thickest stands. This would be expected in a season such as the present one. As a whole, the corn yields this year are exceptionally good, the average being appreciably higher than that of any previous season in the history of the Station.

Plowing of milo stubble was started and the following plats were plowed: A4-11, 15; A5-1, 4, 8 and 12; A6-1, 2 and 5; B5-17.

The plats fallow after oats were disked to kill the large number of oats which had started growth since the recent rains.

During the week ending Aug. 29, the maximum temperature was 98, minimum temperature 71, and the greatest daily range 25.

The second crop of sorghum in 8" drills on the rotation plats was cut. The second crop of Sudan grass for hay was also cut. Breaking of corn stalks was completed so that all corn stubble is now in readiness for plowing.

Plowing of milo and corn stubble was continued, and the following plats were plowed: B4-15, 18; B5-1, 2, 14 and 16; B6-2.

Picking of cotton was continued, the first picking of all cotton on the farm being completed. Johnson grass in the cotton plats was cut.

Mr. Hastings left on the night of the 29th for Washington.

## Truckee-Carson.

During the week ending Aug. 22, the maximum temperature was 97, minimum temperature 41.

Arrangements have been made by the Reclamation Service for the opening to entry of the public lands of the Truckee-Carson Project on September 18. The water right has been increased from \$30 to \$60 per acre. This opening has been arranged to occur during the week of the Truckee-Carson Fair, so that



5 September, 1914.

## FIELD NOTES.

## Truckee-Carson (continued).

the visitors will have an opportunity of getting acquainted with the agricultural possibilities of the Project.

The buildings of the Experiment Farm are being repaired and repainted and the grounds put in good order in anticipation of the coming of many visitors during the project opening.

On August 20 one man was sent with a 4-horse team and Fresno scraper to assist in the leveling of the grounds of the Harmon School District. The 10 acres of land which was donated to this district has been leveled ready for planting by the donation of men and horses by the citizens of the district.





12 September, 1914.

## FIELD NOTES.

Yuma.

During the week ending August 22, the maximum temperature was 109, minimum temperature 64, and greatest daily range 40.

Alfalfa was harvested for seed from C-28, 42 and 44. Alfalfa on B9 to 17 was harvested for hay. Second cutting of Sudan grass from method-of-seeding test was harvested. Stocks were mowed and hauled from earliest varieties of grain sorghums of the May planting with the attempt to force a second crop of grain.

Two laborers were employed the entire week with miscellaneous hoeing of Bermuda grass from ditch bank borders, etc.

Two hundred Eucalyptus rudis were transplanted to the west farm road. A quantity of seedlings of various varieties of Eucalyptus being propagated were transplanted to flats.

Mr. A. W. Morrill, State Entomologist of Arizona, visited the Station on the 20th. He was specially interested in the egg parasite which is supposedly destroying many lady bugs this season, thus allowing the cotton aphid to develop in great numbers. Some of the early cotton being picked is badly stained and damaged by the gummy excretion of the aphid where they are present in great numbers. The aphid has been a common pest in all the cotton sections near the Colorado River this season.

The total acreage irrigated during the week was 34 acres.

During the week ending August 29 the maximum temperature was 105, minimum temperature 63, and greatest daily range 30.

During a greater portion of the week laborers and teams were employed in clearing silt and vegetation from the main farm canal on the north. Much general hoeing and cultivating of orchards, nurseries and row crops was done.

The later varieties of grain sorghums from May successive plantings were harvested. A late



12 September, 1914.

## FIELD NOTES.

## Yuma (continued).

August seeding of Feterita was planted on A24; also, late planting was made of several varieties of melons.

Deciduous orchard, B23 to 32, was summer pruned. The earliest sorts of seedling pomegranates, and also named varieties, are beginning to ripen. With the maturing of the fruit the unidentified pomegranate disease is beginning to develop extensively.

During the week 32 acres were irrigated.

## Scottsbluff.

During the week ending August 29 the precipitation amounted to .27 inch, and came as one shower. On September 1 light frosts were reported in the Valley; no damage was done by this frost to any of the garden crops.

Stacking of the third cutting of alfalfa was completed on the 27th. Cutting of all the dry land corn and a portion of the irrigated corn was completed. The corn is ripening up in good shape this year, and all indications are for a large crop.

Two and three men were kept busy irrigating grain and alfalfa stubble. One team of three horses was used in plowing Series III, IV and V, of Field G.

Fences are being built through the corn that will be hogged off. It is expected to turn the hogs on the corn next week.

A number of hay balers are at work in the Valley and alfalfa hay is being shipped out at \$8.00 per ton for No. 1 hay. A new alfalfa meal mill is under construction at Gering. It is hoped that this will soon be in position to receive hay for grinding.

## Huntley.

During the week ending August 29, threshing of grains in Fields B and C was completed. This in-





12 September, 1914.

## FIELD NOTES.

Huntley (continued).

cludes wheat varieties, oats in fertilizer test, and flax in time-of-irrigation test.

The yields of wheat in the variety test are as follows; each figure showing the average results on 3 plats.

Plat number	Variety	Plants per acre	Y i e l d .			
			Per plat		Per acre	
			Grain	Straw	Grain	Straw
CIII-1,5, 9	Pringle's Champ.	495,000	106	180	35.4	3600
2,6,10	Stanley	420,000	81	182	27.1	3640
3,7,11	Marquis	415,000	93	164	30.8	3280
4,8,12	Dicklow	544,000	88	188	29.4	3760

Wheat was on land that was in oats in 1912 and planted to sugar beets in 1913, but plowed up in August because of light stand, so that the land was fallow during 1913. Plats are 1/20 acre in size. All varieties were rather badly affected with rust. All plats were irrigated on July 7 and 23.

Yields of oats in fertilizer test are as follows:

Plat number	Fertilizer per acre	Plants per acre	Yield	
			per plat	per acre
			Straw	Grain
	Pounds		Pounds	Bushels.
BVII-1	none	560,000	133	85.6
5	do.	801,000	129	85.0
9	do.	690,000	136	85.0
Average		...	...	85.2
BVII-2	300	621,000	136	83.7
6	300	795,000	125	88.1
10	300	650,000	137	83.1
Average		...	...	84.9
BVII-3	500	700,000	160	87.5
7	500	900,000	113	85.6
11	500	710,000	134	78.7
Average		...	...	83.9



12 September, 1914.

FIELD NOTES.

Huntley (continued).

Yields of oats in fertilizer test (continued)

Plat number	Lbs. Fertilizer per acre	Plants per acre	Yield	
			per plat	per acre
			Straw	Grain
	Pounds		Pounds	Bushels
BVII-4	700	810,000	153	82.5
8	700	825,000	126	86.8
12	700	641,000	141	83.7
Average	...	.....		84.0

Plats are 1/20 acre in size. Fertilizer was applied at same rates and on the same plats in 1913. In 1913 plats 1 to 4, inclusive, were in wheat, plats 5 to 8 were in oats, and plats 9 to 12 were in barley. Fertilizer used was acid phosphate and was applied at the time of preparing seed bed. The variety of oats was Swedish Select. All plats were irrigated uniformly on July 10 and 25. There was no noticeable difference in color or appearance of growing crop. Yields of flax in time-of-irrigation test will be reported later as soon as flax is recleaned.

Irrigated Rotation Field.

Hogs in rotation 67 were weighed for the period from August 16 to 26, and the following results obtained.

Days	No. of hogs	Initial weight	% Daily gain	Final weight	Gain per day	Gain for period	Net daily returns per acre	Lbs.pork per acre per day	Amt. grain fed
10	8	486.5	1.0	537.5	5.1	51.0	\$1.03	20.4	100

Considerable time was devoted to hauling manure and hoeing weeds.





12 September, 1914.

## FIELD NOTES.

## Truckee-Carson.

During the week ending August 29, the maximum temperature was 93, minimum temperature 46.

The leveling of Field Y and the cleaning up of buildings and grounds was continued throughout the week.

Field H and plats Y18 to 23 were irrigated.

## SUBSISTENCE.

Memorandum No. 101, dated August 1, 1914, and signed by the Secretary, reads as follows:

## PER DIEM IN LIEU OF SUBSISTENCE.

Paragraph 15 of the Fiscal Regulations, as amended by Memorandum No. 64, dated January 28, 1914, is hereby further amended so as to read as follows, effective this day:

15. Per Diem in Lieu of Subsistence.-- Officers or employees of the Department of Agriculture engaged in field work, or traveling on official business outside of the District of Columbia and away from their designated posts of duty, may receive a per diem allowance in lieu of subsistence. The rates which may be allowed, not to exceed four dollars per diem, will be fixed by the Secretary on the recommendation of the chief of the branch of the Department in which the officer or employee is employed, giving consideration to the character of the duties to be performed and the section of the country to be traveled.

Officers and employees authorized to receive per diem allowances will not be reimbursed, in addition, for meals, lodging, fees to hotel employees, waiter fees, bath, laundry, or other subsistence expenses; but, in addition to the per diem allowance, may be reimbursed for expenses necessarily incurred for railroad and steamboat





13 September, 1914.

## Subsistence (continued).

fares, sleeping berth, staterooms on steamboats, seats in parlor or chair cars, street car, transfer coach, and omnibus fares, transfer of baggage between depots and hotels, livery hire, stage fare and other means of conveyance between points not accessible by railroad, and other expenses of transportation.

Per diem allowance in lieu of subsistence under this regulation will be subject to the following rules:

(1) In computing the per diem allowance for fractional parts of a day will be considered as consisting of four equal parts, corresponding to breakfast, dinner, supper, and lodging, and for each such fractional part of the day for which expenses are incurred one-fourth of the per diem allowance will be granted. In traveling by railroad or ship, when the expense for berth in sleeping cars or stateroom is paid by the Government, the per diem allowance will not be reduced by reason thereof.

(2) Officers or employes taking annual leave on Monday or returning from annual leave on Monday who may claim a per diem allowance for the preceding Sunday will be required to show affirmatively the performance of official duties on that Sunday, and the place where such duties were performed.

(3) Letters of authorization may designate certain cities in which unusually high hotel rates prevail and provide that the per diem rate, or three dollars or less, specified in the letters of authorization, shall be increased \$1 per day in each of the cities. In computing the per diem allowance at the higher rate in these cities the day will be considered as consisting of four equal parts, corresponding to breakfast, dinner, supper, and lodging, and for each such fractional part of the day for which expenses are incurred in these cities one-fourth of the per diem allowance at the higher rate will be granted.

(4) For days on which an officer or employe is in a camp or other place where meals are furnished by the Government, or on a ship on which transpor-



12 September, 1914.

Subsistence (continued).

tation charge includes meals, he may, under authority from the chief of his bureau, be allowed actual expenses incurred on such days or a fractional per diem for those parts of the day during which he was placed at personal expense for meals or lodging.

(Signed) D. F. Houston,  
Secretary.

TEMPORARY LABOR.

It is suggested that it would simplify matters all around if temporary labor were employed on a per diem, rather than a monthly, basis.





19 September, 1914.

## FIELD NOTES.

Huntley.

During the week ending September 8, the third crop of hay in Fields M, K and A-III was harvested. Grain stubble in Fields B and C was double disked.

In the following table are stated the approximate amounts received by the Huntley Project farmers for dairy products during May, June and July.

Month	Butter-fat pounds	Average price butterfat	Value of cream shipped to creameries	Sweet cream		Total value of dairy products
				gallons	value	
May	3532	26¢	\$918.32	\$ 200	\$200	\$1118.32
June	3681	25¢	920.25	200	200	1120.25
July	3283	24¢	787.92	200	200	987.92

Irrigated Rotations.

Flax stubble was disked. Flax plats were threshed and the following yields obtained:

Rot.No.	Plat No.	Preceding Crop	Bushels per acre.
67	K-II-3	Corn (hogged)	24.28
9	K-III-16	Flax (con't)	12.39

Third crop of alfalfa was cut the fore part of the week.

Hogs in Rotation 67 were weighed for the period from August 26 to September 5. The results obtained



19 September, 1914.

## FIELD NOTES.

## Huntley (continued).

Days	No. of hogs	Initial weight	Final weight	Gain per day	Gain for period	% Daily gain	Net daily returns per acre	Lbs. pork per A. per D.	Amt. grain fed
10	8	537.5	575.5	3.8	38	.68	\$.62	15.2	110

## Umatilla.

During the week ending September 12, the maximum temperature was 86, minimum temperature 40, precipitation .025 inch.

D4 was irrigated and sown to sweet clover.

Cover crops of vetch, and rye and vetch mixtures were sown in D3, D5, C1 and C2.

Half the sorghums are being cut for ensilage as they reach the proper stage of maturity.

Mr. Allen left early in the week for southern Idaho.

## Yuma.

During the week ending September 5, the maximum temperature was 108, minimum temperature 59, and greatest daily range 47.

Sudan grass on C-23, 26; Tunis grass on D-38; and alfalfa on B-18, 19, 20, C-41, D-22 and 26 were harvested. Several of the earlier varieties of cowpeas on E-7 and 8 were harvested for seed.

The date nurseries, cowpeas, cotton and sorghum plats irrigated the previous week were cultivated. Also, hoeing of borders, road plantings, pecans and nursery plats was continued. The ornamental plantings on station grounds were labeled with aluminum tags. The deciduous orchard and pecan nursery were furrowed for irrigation.





19 September, 1914.

## FIELD NOTES.

## Yuma (continued).

A new  $2\frac{1}{2}$  horse-power Novo gas engine was received at the station.

Two carpenters were employed for several days shingling the office and residence.

C. V. Piper visited the station on the 14th.

A total of 21 acres were irrigated.

## Belle Fourche.

During the week ending September 5, the maximum temperature was 96, minimum temperature 38, and precipitation .43 inch.

Alfalfa in Field K, pasture plats, and rate-of-seeding plats was irrigated. Alfalfa on the grounds was cut and irrigated.

All the threshing was completed with the exception of some row work.

Plowing in Field P was completed.

Some seepage is showing up on the south end of Field A, Series I and II. Bridges have been made and the water stands from three feet to within a few inches of the surface. This seepage comes from the townsite lateral. A ditch four feet deep has been dug through the main part of the seeped land, but the water is going down very slowly.

The following table shows the gains made by the hogs on alfalfa pasture for each period since May 20.

Dates	Number of days	Number of hogs	Weights		Gains			Corn fed	Pounds pork
			Initial	Final	Total	%	per day per hog		per acre per day
5/20- 6/1..	12	6	620	704	84	1.08	1.16	230	28
6/1- 6/13.	12	4	462	532	70	1.18	1.45	200	23.2

(continued on next page)





19 September, 1914.

## FIELD NOTES.

Belle Fourche (continued).

Dates	Number of days	Number of hogs	Weight		Gains			Corn fed	Pounds pork per acre per day
			Initial	Final	Total	% Daily	per day per hog		
6/13- 6/22.	.9	4	532	534	2	.03	.055	95.4	.88
6/22- 7/2..	10	4	534	546	12	.21	.3	106.8	4.8
7/6- 7/16.	10	8	410	440.5	30.5	.71	.38	82	12.16
7/16- 7/25	9	8	440.5	485	44.5	1.07	.61	79.2	19.76
7/25- 8/4	10	6	366	403	37	.96	.61	73.2	14.8
8/4- 8/14.	10	6	403	440.5	37.5	.89	.62	80.6	15.0
8/14- 8/24	10	6	440.5	489.5	49	1.03	.81	88.1	19.6
8/24- 9/3..	10	6	489.5	510.5	21	.41	.35	97.9	8.4

The following figures relate to the 10-day period, August 24 to September 3. Twenty-one pounds of gain at 7 cents equals \$1.47. 97.9 pounds of corn at \$1.70 per hundred equals \$1.66, the value of corn fed. This makes a loss of 19 cents on the  $\frac{1}{4}$  acre, or 76 cents per acre, or 7.6 cents per acre per day.

Truckee-Carson.

During the week ending September 5, Mr. Curtis went to Stillwater to clean and weigh the grain (oat and wheat) varieties that had been grown by Mr. Langford in cooperation with this station. The



19 September, 1914.

## FIELD NOTES.

Truckee-Carson (continued).

results of the test were as follows:

Variety.	Area, acres	Total yield, pounds	Total yield per acre, pounds	Yield clean seed	Yield per acre clean seed pounds
		<u>W H E</u>	<u>A T</u> .		
Dicklow.....	.100	184	1840	179	1790
Bluestem.....	.170	307	1806	300	1764
Little Club.....	.218	416	1480	401	1458
Defiance.....	.371	427	1150	407	1096
Marquis.....	.359	393	1095	373	1038
*Spencer.....	.445	434	976	412	936
		<u>O A T</u>	<u>S</u>		
Early Mountain..	.292	229	774	208	712
Swedish Select..	.422	278	659	260	616
*Spencer.....	.146	95	650	85	582
White Russian...	.416	264	611	235	566
American Banner.	.338	192	568	180	532
Abundance.....	.418	255	530	245	509

\* Local seed grown by Mr. Spencer.

During the month of August the Churchill Creamery purchased 13,032 pounds butter for which \$3629.38 was paid. The average price per pound was 29.9 cents.

San Antonio.

During the week ending Sept. 12, the maximum temperature was 97, minimum temperature 70, and greatest daily range 28. There was no precipitation.

During the past two weeks, the following field work has been accomplished: Plowing of corn stubble on the rotation plats has been completed, the follow-





19 September, 1914.

## FIELD NOTES.

ing plats having been plowed: A4-8, A6-8, 10, 12, 14, 16 and 18. Plat B6-4 was plowed and subsoiled.

Corn stubble on plats B6-8, 10, 12, and 18 was double disked to prepare for planting winter cover crops on all except B6-12, which receives only disking as a preparation for cotton.

All of the orchards were cultivated and weeded.

All of the sorghum which had been cut was shocked.

The taking of soil samples on the cotton and sorghum plats was completed.

The second picking of cotton on the rotation plats was completed with the exception of one plat. Picking of cotton on the thinning experiment and other experiments under the direction of the Office of Crop Acclimatization is practically completed.

Johnson grass on fields B3, C3, D4 and D5 was cut.

Two loads of cotton were hauled to the gin and two bales were made, one weighing 496 and the other 595 pounds.

The "Buy a Bale of Cotton" movement is being furthered by the San Antonio Chamber of Commerce, and a mass meeting of the citizens was called for the night of September 14. It is hoped to be able to take care of 25,000 bales in San Antonio at ten cents per pound.

Mr. McKeever has left the Station and gone to Clarksville to assist with cotton work at that place. Mr. Meade left for Greenville and other northern Texas points on the 12th.

## Scottsbluff.

During the week ending September 12, the weather was such that all growing crops made good growth. The fourth growth of alfalfa is about 12 inches high. All of the fall irrigation was completed.

The alfalfa on Field I, series 1, was turned under; as soon as the alfalfa is cut, Series 2, of the same field, will be plowed.



19 September, 1914.

## FIELD NOTES.

## Scottsbluff (continued).

Several men were kept busy finishing the hog fences around the corn, weighing the hogs, etc. The hogs were turned on the corn Sept. 8.

A horse sale held last week was almost a failure on account of the low prices. The cattle, on the other hand, are very high.

Hay has taken another drop, \$7.50 being offered, but none is sold at that price; the farmers refuse to sell for less than \$8 per ton. It is very doubtful if the farmers will realize their price for hay is more plentiful than ever, and indications are that very little stock will be fed this year.

## SUBSISTENCE.

Memorandum for Heads of Offices, dated Sept. 15, and signed by the Chief of Bureau, reads as follows:

"In view of complications that have developed affecting the authorization of per diem allowance in lieu of subsistence in connection with travel in the field work of the Bureau, it appears advisable to handle this work in future through reimbursement of actual expense for travel and subsistence. All requests for letters of authorization to be issued should be upon this basis, and all existing letters authorizing per diem allowance in lieu of subsistence extending beyond September 30 should be amended to the actual expense basis.

Employees in the field should be notified at once regarding this change and instructed to secure the subvouchers required by the Fiscal Regulations."

All operating letters and travel letters extending beyond September 30 are being amended in accordance with this order, and employees should be governed accordingly.





26 September, 1914.

## FIELD NOTES.

## Yuma.

During the week ending September 12, the maximum temperature was 105, minimum temperature 57, and greatest daily range 47.

Alfalfa for hay was harvested on E-18, 19 and 20. Cowpeas for seed from E-7 and 8 and sorghum from D-10 were harvested. Plats A-10<sub>7</sub>-12<sub>2</sub>-14<sub>8</sub>-15<sub>1&2</sub>-C<sub>19</sub> and D<sub>36</sub> were plowed. Sorghum, corn, cotton and nurseries were cultivated. Dates on A<sub>25</sub> were disced.

The first cotton was picked September 9: variety Durango from D<sub>15</sub>.

Fourteen varieties of flax, received from the Office of Cereal Investigations, were sown on A<sub>14g</sub>.

The roses on the Station grounds were pruned and cuttings from the choicest varieties planted in the nursery.

Mr. M. A. Carlton visited the Station on the 12th.

Total irrigation for the week was 40 acres.

## San Antonio.

During the week ending September 19, the maximum temperature was 98, minimum temperature 66, and greatest daily range 38. There was .05 inch precipitation.

Raking and shocking of hay was practically completed.

Milo stubble on C5 was broken and plowing of the same started. All fallow plats, cotton plats, alleys and roads in the rotation experiments were weeded.

A large number of people visited the farm during the week, among them a party of twenty farmers representing the Farmers' Institute, of Kendall County. They came in automobiles a distance of about forty miles, and were boosting the Kendall County Fair, which is to be held at Boerne, Texas, September 23, 24 and 25.

Mr. M. A. Carlton visited the Station on the 15th.





26 September, 1914.

## FIELD NOTES.

San Antonio (continued).

Mr. Davidson made a trip to Tivoli the latter part of the week to assist in the picking of cotton in experiments at that place.

Huntley.

During the week ending September 13, hay was hauled in from Fields A-III and K. Yields from A-III are as follows:

Plat number	Date and Method	Y i e l d		
		per plat	per acre	Total 3 crops per acre
		(pounds)	(tons)	(tons)
A-III- 1	Nurse Crop	790	1.58	4.97
2	Early	655	1.31	4.55
3	Late	705	1.41	4.56
4	18" rows	625	1.25	3.94
5	Nurse Crop	730	1.46	4.53
6	Early	810	1.62	5.15
7	Late	690	1.38	4.66
8	18" rows	630	1.26	4.31
9	Nurse Crop	710	1.42	4.72
10	Early	945	1.89	5.97
11	Late	915	1.83	6.03
12	18" rows	875	1.75	5.22
13	Nurse Crop	990	1.98	6.23
Average : Four plats nurse crop.....				5.11
Three plats early.....				5.22
Three plats late.....				5.08
Three plats 18" rows.....				4.49

This field was planted in 1911.



26 September, 1914.

## FIELD NOTES.

Huntley (continued).

Pasture Grass Experiments.

In order to obtain some idea of the carrying capacity of pastures under irrigation a test has been carried on with two cows on pasture mixtures planted in 1913 and 1911.

Two one-quarter acre plats, A-II-1 and 2, were planted in 1913 to the following mixtures.

Plat 1. Timothy, red top, Kentucky blue grass, orchard grass, *Bromus inermis*, meadow fescue, tall fescue, Italian rye grass, western wheat grass, perennial rye grass, tall oat grass.

Plat 2. Tall oat grass, timothy, red top, Kentucky blue grass, orchard grass, *Bromus inermis*, meadow fescue, tall fescue, Italian rye grass, western wheat grass, perennial rye grass, white clover, alsike.

These were fenced together and Plat A-II-4, containing one-quarter acre, planted in 1911 to *Bromus inermis*, 16 pounds per acre; orchard grass, 16 pounds; red top, 4 pounds; timothy, 8 pounds; and alsike clover, 8 pounds, was also fenced. On April 30 the cows were placed on the pasture containing plats 1 and 2 and were run on this and plat 4 alternate weeks during the first part of the season. The stand at first in plats 1 and 2 was so light that there was no more growth here than on the single plat 4. The stand thickened as the season advanced and after July 15 these plats were pastured two weeks as against one week on Plat 4.

During each period after the cows were removed from the plat, the plat was irrigated.

Four pounds chopped grain, mixed oats, wheat, and barley was fed per cow per day. There was enough growth on these three plats to make excellent pasture until September 1. Since that time the growth has been slower and it has been necessary to supplement the pasture with a small amount of alfalfa hay per day for each cow.

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26 September, 1914.

## Huntley - Pasture Grass Experiments (continued).

Mixture C which was the same as B with the addition of two pounds of alfalfa per acre contained too much alfalfa for safe pasturing and could not be used.

From the separate grasses planted in 1913, in 1/30 acre plats, only one cutting was obtained except in the case of orchard grass, tall oat and meadow fescue, which produced light second growths.

The yields of the grasses for the season were as follows:

Plat No.	C r o p	Y i e l d					
		per plat		per acre		Total	
		1st	2nd	1st	2nd	per acre	
A-II-11a	Timothy	10		.10		.10	
12b	Orchard grass	150		1.50		1.50	
13a	Bromus inermi	140		1.40		1.40	
13b	Mead. fescue	135	80	1.35	.80	2.15	
11c	Tall fescue	165		1.65		1.65	
11d	Ital. rye grass	40		.40		.40	
12c	West. Wh't. grass	80		.80		.80	
12d	Peren. rye grass	40		.40		.40	
13c	Tall oat grass	180	80	1.80	.80	2.60	
13d	Orchard grass	125	70	1.25	.70	1.95	

Of the separate grasses, timothy, red top, Kentucky blue grass failed to make a stand in 1913, and were replanted this season. The first three manured again failed to grow, but of the western wheat grass there was an excellent stand.

Yields of alfalfa from plats M-I-12 and 15 (third crop and total for season) are as follows:

Plat No.	Y i e l d .	
	Third crop	Three crops
M-I-12	.46	2.24
15	.51	2.97



26 September, 1914.

## FIELD NOTES.

Huntley.

During the week ending Sept. 19, hauling of the third crop of alfalfa was completed.

Sugar beets are being harvested.

Depth of water in the test wells on the Worden Tract, on Sept. 16, are given below:

<u>Well No.</u>	<u>Depth to water, ft.</u>	<u>Difference since Sept. 1.</u>
A-1	3.33	.05 fall
2	3.66	.10 "
3	3.88	.14 "
B-1	4.08	.08 "
2	3.21	.06 "

Irrigated Rotations.

Harvesting of beets was begun the week ending Sept. 19. All but two plats have been hauled to the dump. Part of the corn was shocked. A fence is being built around corn plat K-II-2, of rotation 67, and the hogs will be turned in about the 23rd of Sept.

Hogs in rotation 67 were weighed for the period Sept. 5 - 15, and the following results were obtained.

<u>Days</u>	<u>No. of hogs</u>	<u>Initial weight</u>	<u>Final weight</u>	<u>Gain per day</u>	<u>Gain for period</u>	<u>% Daily gain</u>	<u>Not daily returns per acre</u>	<u>Lbs. pork per A. per D.</u>	<u>Amt. Grain fed</u>
10	8	575.5	595.5	20	2.0	.32	.10	8.0	115

The pasture was not in good condition during this period.



26 September, 1914.

## FIELD NOTES.

## Belle Fourche.

During the week ending Sept. 12, the maximum temperature was 90, minimum temperature 41; precipitation .14 inch.

Plats 24, 30 and 32 in Field A-1 were plowed and Plats I-48 and III-29 were harrowed.

The summer fallow plats in Field P were leveled and harrowed.

The orchard was dragged, leveled and sown to winter wheat, and the trees wrapped with burlap.

The irrigating of the alfalfa on the grounds was completed.

All of the alfalfa in Field A was cut and about half of the plats cocked.

Fallow land in Field P was disked.

The following table shows the gains made by the hogs on alfalfa pasture for each period since May 20.

Dates	No. of days	No. of hogs	Weights		Gains			Corn fed	Lbs. pork per acre per day
			Initial	Final	Total	Daily	per day per hog		
5/20-6/1	12	6	620	704	84	1.08	1.16	230	28
6/1-6/13	12	4	462	532	70	1.18	1.45	300	23.2
6/13-6/22	9	4	532	534	2	.03	.055	95.4	.88
6/22-7/2	10	4	534	546	12	.21	.3	106.8	4.8
7/6-7/16	10	8	410	440.5	30.5	.71	.38	82	12.16
7/16-7/25	9	8	440.5	485	44.5	1.07	.61	79.2	19.76
7/25-8/4	10	6	366	403	37	.96	.61	73.2	14.8
8/4-8/14	10	6	403	440.5	37.5	.89	.62	80.6	15
8/14-8/24	10	6	440.5	489.5	49	1.03	.81	88.1	19.6
8/24-9/3	10	6	489.5	510.5	21	.41	.35	97.9	8.4
9/3-9/12	9	4	357	393	36	1.06	1.0	64.26	16





26 September, 1914.

## FIELD NOTES.

## Belle Fourche (continued).

Thirty-six pounds gain at 7 cents per pound is worth \$2.52. 64.26 pounds of corn at \$1.70 per hundred cost \$1.09. \$2.52 minus \$1.09 equals \$1.43, the net value of the gain of 1/4-acre. The value of the gain on one acre would be \$5.72, or \$.63 per acre per day.

## Scottsbluff.

During the week ending Sept. 19, the weather continued dry. On the night of Sept. 13 a killing frost occurred over the entire Valley. The thermometer registered 30 degrees. During the week some of the very early varieties of potatoes were harvested as well as the potatoes in the cultivation and irrigation experiments.

The cultivation and irrigation experiments were conducted on duplicate plats. In the following table, where the yields are reported, the figures giving "marketable" and "culls" represent the results obtained by passing the potatoes over a 2-inch screen. The plats were duplicates on adjacent series, and the figures given below are the averages of two plats in each case.

Plat	Cultivation	Irrigation	Yield per acre, Bus.			
			Market- able	Culls	Total	%Cul.
1	Shallow	To keep plants moist continuously	217.7	53.3	285.0	25.6
2	Deep	" " " " "	263.0	59.2	322.6	22.9
3	Deep	When plants suffer for water	173.3	57.9	231.6	28.4
4	Shallow	" " " " "	182.5	55.2	237.7	30.4
5	Deep	Usual method and time	222.7	53.7	276.4	24.1
6	Shallow	" " " " "	202.5	62.9	265.4	28.6
7	Deep	In alternate rows, alternately	180.6	65.0	245.6	30.5
8	Shallow	" " " " "	168.2	66.2	239.2	39.5
9	Deep	In alternate rows, thruout season	163.7	58.4	222.1	35.3
10	Shallow	" " " " "	144.7	63.1	207.9	44.1
Average.....			191.9	59.5	253.3	31.0
Average of deep cultivation.....			200.6	58.8	259.8	28.2
Average of shallow cultivation.....			183.1	60.1	247.0	33.6



26 September, 1914.

## FIELD NOTES.

## Scottsbluff (continued).

Two men started to put up a solid board fence around the corral. Two others were put to work painting the barn. Off and on during the week some of the men were busy irrigating whenever water was available. All irrigation will be completed in a few days.

Under date of Sept. 5, Mr. Knorr reports as follows concerning the dairy work:

"The cows have gone down considerably in their milk flow during the past month. We have also experienced some difficulty in disposing of the cream. The local store, which has been buying cream for the Fairmont Creamery, is no longer buying cream.

The last cream that we were able to dispose of brought 22 cents for butter fat. In the future we may have to churn the cream, and sell the butter at the stores.

Cow No.	Lb. Milk	% Butter fat	Total Butter fat	Value @ 22¢
*1	319.5	3.7	11.8	\$3.60
2	247.8	3.7	9.1	2.01
3	280.4	3.5	9.8	2.15
4	437.1	3.8	17.9	3.95
Total	1284.8	...	48.6	\$11.71

Pasture rental \$7.00 per acre....\$1.52

Labor, 2 hours per day at 22¢

per hour.....\$13.64

\$15.16

\* This cow died of bloat about noon August 28. The animals were in a pasture that contained alfalfa seeded at the rate of two pounds of alfalfa seed per acre in a strong grass mixture.

The following table gives the results of the hog pasturing experiments during the 15-day period from July 23 to August 7, as reported by Mr. Holden.





26 September, 1914.

## FIELD NOTES.

## Scottsbluff (continued).

Pig No. 134, in Lot 1, which lost 2 pounds during the period, apparently was too small to do well on the pasture. It weighed only 15 pounds when it was put on the plat.

Hog No.	Weight		Gain		
	July 23	Aug. 7	Total Lbs.	Daily Lbs.	% Daily
Rotation 65, 2% corn.					
138	65	69	4	.26	.40
139	67	79	12	.80	1.10
140	63	74	11	.73	.99
141	62	76	14	.93	1.37
142	70	81	11	.73	.98
143	53	66	13	.86	1.47
144	67	84	17	1.13	1.51
145	59	73	14	.93	1.42
146	100	112	12	.80	.75
147	92	105	13	.86	.89
Total	698	819	121	8.03	1.07

Lot 1, No grain.					
94	116	124	8	.53	.73
127	66	76	10	.66	.94
132	108	119	11	.73	.65
133	42	47	5	.33	.80
134	15	13	-2	-	-
135	59	65	6	.40	.65
136	34	39	5	.33	.92
Total	440	483	45	2.98	.62

Lot 2, 1% corn.					
130	102	112	10	.66	.62
118	112	120	8	.53	.46
122	43	49	6	.40	.87
123	55	65	10	.66	1.12
124	43	48	5	.33	.73
125	44	53	9	.60	1.24
126	109	114	5	.33	.30
119	84	100	16	1.06	1.17
Total	592	661	69	4.57	.73



26 September, 1914.

Scottsbluff.

## FIELD NOTES.

Hog No.	Weight		Gain		
	July 23	Aug. 7	Total Lbs.	Daily Lbs.	% Daily
<u>Lot 3, 3% corn</u>					
92	116	126	10	.66	.55
93	102	112	10	.66	.62
72	122	135	13	.86	.66
111	36	50	14	.93	2.20
112	42	53	11	.73	1.56
113	51	64	13	.86	1.51
114	65	79	14	.93	1.30
115	68	81	13	.86	1.17
116	47	57	10	.66	1.29
137	108	119	11	.73	.65
X	136	155	19	1.26	.65
Total	893	1031	138	9.14	.96

<u>Lot 4, 2% ground barley</u>					
89	141	159	18	1.20	.80
97	53	63	10	.66	1.14
98	45	56	11	.73	1.47
99	61	70	9	.60	.92
100	45	53	8	.53	1.10
101	50	57	7	.46	.87
102	43	50	7	.46	1.03
103	43	52	9	.60	1.24
104	59	70	11	.73	1.13
105	131	149	18	1.20	.86
Total	671	779	108	7.17	1.00

Summary.

	Rot. 65 2% corn	Lot 1. No grain	Lot 2 1% corn	Lot 3 3% corn	Lot 4 2% ground barley
No. of Hog	10	7	8	11	10
pounds per acre					
July 23	2792	1760	2368	3572	2684
Aug. 7	3276	1932	2644	4124	3116
Total Gain	121	45	69	138	108
" per day	8.03	2.98	4.57	9.14	7.17
Per hog per day	.81	.42	.57	.83	.71
% Daily gain	1.07	.62	.73	.96	1.00
Pork per acre					
per day	32.12	11.92	18.28	36.56	28.68



26 September, 1914.

## FIELD NOTES.

## Truckee-Carson.

The following report of the work on the Truckee-Carson Experiment covers the two weeks ending Sept. 19.

The corn in A1 and the broom corn in B2 has been cut and shocked. The alfalfa in all fields has been cut.

The fodder varieties of corn and sorghum on the Churchill County Creamery Farm were cut and hauled green. The yields of the different varieties are shown in the following table.

Table Showing Yields of Fodder Varieties  
Grown on the Churchill Creamery Farm.  
(Yields are given in green weight per acre).

	Series I		Series II		Average
	Area	Yield	Area	Yield	
Giant Fodder					
Corn.....	.049	27041	.063	45952	36497
Red Cob Corn.	.052	31442	.063	39841	35642
Elephant Corn	.056	36161	.062	42419	39390
Early Yellow					
Dent Corn..	.060	30167	.061	23935	27051
Early Amber					
Sorghum....	.065	20715	.060	28417	24566

The broom corn millet in plats B1 and H2 were cut and hauled. One thousand seven hundred pounds were secured from .25 acre in B1, making a yield per acre of 3.4 tons per acre. Three hundred and eighty-five pounds of millet were obtained from .29 acre on H2, making a yield of 1330 pounds per acre. Plat B1 was heavily manured in the winter of 1909-10, and again during the spring of 1914. Plat H2 has never been manured and has grown grain in succession for several years. A crop of winter wheat was removed in June, of this year, and the millet planted in the stubble.





26 September, 1914.

FIELD NOTES.

Truckee-Carson(continued).

The Annual Truckee-Carson Fair was held during September. The exhibits of livestock and farm produce were about the same as has been exhibited in previous years.

The first land drawing occurred on the 18th. Only 19 farm units of the 95 open for entry were applied for.



3 October, 1914.

## CHANGE IN WEEKLY BULLETIN.

Beginning with the current issue the Weekly Bulletin will include material not only from the Office of Western Irrigation Agriculture, but also from the Office of Demonstrations on Reclamation Projects, and the title page will be changed accordingly. The work of each office is so closely related to that of the other and the men of the two offices will have so many common interests that it has seemed desirable to make this arrangement in the Weekly Bulletin.

## COOPERATION IN LIVESTOCK WORK.

The Secretary of Agriculture has approved an estimate for \$87,500 for livestock work on dry land and irrigation field stations. This estimate was submitted to him by a Committee composed of Messrs. Chilcott, Rawl, Rommel, Farrell and Scofield. The Projects covered by this estimate have been outlined in a previous issue of this Bulletin-Aug. 29, 1914.

WESTERN IRRIGATION AGRICULTURE.

## FIELD NOTES.

## Scottsbluff.

During the week ending Sept. 26, the weather continued dry and warm. The thermometer registered 92 on Tuesday, the 22nd.

During the week the barn was painted and the work on the corral fence continued.

All potatoes, except some varieties of large vines, were harvested. It will be necessary to cut





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FIELD NOTES.

## Scottsbluff (continued).

the vines, or wait until they die down, before these varieties can be harvested.

Two men were employed cleaning up about the farm.

## San Antonio.

During the week ending September 26, the maximum temperature was 96, minimum temperature 52, and greatest daily range 30. A heavy rain occurred on the night of Sept. 22, the precipitation recorded on the 23rd being 1.82 inches. Only the one shower occurred and since then the weather has been very clear and much cooler.

Plowing of milo stubble on field C5 was continued. Cotton on fields C4, C5 and D3 was weeded. A hay baler was employed a part of the week in baling Johnson grass and sorghum hay. About five hundred bales were baled. Considerable labor was consumed in scattering and repiling hay which was wet rather badly by the rain. Even though the hay was in large cocks, the rain fell so rapidly and was of such a beating nature that some of the cocks were rather badly wet.

## Belle Fourche.

During the week ending September 19, the maximum temperature was 101, minimum temperature 36.

The stacking of the third cutting of alfalfa in field A, and rate-of-seeding test in field I, was completed.

The following table shows the yields per acre of the third crop and the total yields per acre of



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FIELD NOTES.

Belle Fourche. (continued).

the alfalfa on the rotations under irrigation in field A.

Rotation number	Plat. number	Yield per acre (Tons)	Year	Height at maturity (Inches)	Total yield for year.
8	I-51	1.10	3rd	20	3.86
8	III-24	1.28	2nd	18	5.76
40	I-1	1.26	1st	16	2.48
40	I-2	.70	2nd	14	3.08
42	I-5	.78	1st	18	1.56
42	I-6	.98	2nd	15	3.34
44	III-19	1.22	1st	23	2.24
44	III-20	1.28	2nd	20	4.29
48	II-19	1.32	1st	23	2.24
48	II-20	1.70	2nd	24	5.14
60	I-10	.86	1st	17	1.84
60	I-11	.90	2nd	18	2.98
60	I-12	.88	3rd	15	3.02
61	II-14	1.10	1st	18	1.66
61	II-15	1.16	2nd	18	3.62
61	II-16	.96	3rd	15	3.72
62	II-8	.84	1st	17	1.61
62	II-9	.74	2nd	17	4.28
62	II-10	1.02	3rd	15	3.86
65	III-14	1.00	1st	18	1.77
65	III-15	1.22	2nd	20	4.08
Average		1.06			3.16

The following table shows the yields of the third crop and the total yields of the season of the alfalfa plats in the manner-of-seeding experi-



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FIELD NOTES.

Belle Fourche (continued).

ment started in 1913 on field A.

	Seeding		Yield per acre	Total yield for season
	Time	Method		
III-33	5/9/13	Without nurse crop (Early)	1.66 T.	4.32 T.
34	6/5/13	" " "	1.34	4.16
35	6/5/13	Rows 21 inches	.96	3.14
36	6/5/13	Nurse crop cut for hay	1.32	3.64
37	5/9/13	" " " " grain	1.30	3.74
38	5/9/13	Without nurse crop (Early)	1.34	4.06
39	5/9/13	" " " (Late)	.86	2.82
40	6/5/13	Rows 21 inches	.72	2.80
41	5/9/13	Nurse crop cut for hay	1.12	3.38
42	5/9/13	" " " " grain	1.20	3.64
43	5/9/13	Without nurse crop (Early)	1.16	3.60
44	6/5/13	" " " (Late)	1.22	3.44
45	6/5/13	Rows 21 inches	1.04	1.96

Average yields, tons per acre.

3 plats without nurse crop, planted May 9 (Early).....	1.38
3 plats without nurse crop, planted June 5 (Late).....	1.14
2 plats, nurse crop cut for hay.....	1.22
2 plats, nurse crop cut for grain.....	1.25
3 plats, planted in rows 21 inches.....	1.00

The following table shows the yields of the third crop and the total yield for the season of the rate-of-seeding alfalfa experiment, started in 1913 in Field K.

Plat No.	Rate of seeding (Pounds)	Yield per acre (Tons)	Height at maturity (Inches)	Total yield of season.
1	2.5	.90	24	3.10
2	3.0	1.10	24	3.20
3	4.5	1.00	19	3.60
4	6.0	.90	19	3.40
5	8.0	.60	15	2.86

(continued)





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Western Irrigation Agriculture.  
FIELD NOTES.

Belle Fourche (continued).

Plat No.	Rate of seeding (Pounds)	Yield per acre (Tons)	Height at maturity (inches)	Total yield of season
6	10.0	.70	16	2.60
7	11.5	.50	16	2.44
8	13.0	.70	15	2.90
9	15.0	.50	16	2.44
10	16.5	.40	14	2.46
11	18.5	.40	14	2.40
12	20.5	.50	12	2.06
13	22.5	.50	12	2.42
14	25.0	.60	12	2.42
Average . . . . .		.66	..	2.73

The fall seeded alfalfa in A that was planted after the grain was removed was irrigated. This alfalfa has made a very good growth and good stands have been secured on all plats. This method of seeding alfalfa seems preferable to either seeding with a nurse crop or without, especially when the land is infested with gumbo weeds (*Iva auxillaris*) as this weed makes most of its growth in the early summer. Where alfalfa is seeded in the stubble it can be irrigated immediately after planting and be brought up at once.

Plantings were made on Aug. 1, 12 and 20 to determine how late alfalfa can be seeded and still survive the winter.

Mr. Arney, of the Minnesota Experiment Station, visited the Station Sept. 18 and 19.

During the week ending Sept. 26, the maximum temperature was 88, minimum temperature 35, and precipitation .03 inch.

The alfalfa seeded in oat stubble in fields I and K was irrigated.

The digging of the potatoes and beets was started in field A. The potatoes were finished excepting half a plat in series 3.



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Western Irrigation Agriculture.  
FIELD NOTES.

## Belle Fourche (continued).

The average yield of the 2nd and 3rd year alfalfa plats in the rotations for the season was 3.92 tons. Assuming that the hogged plat yielded at this rate, the gains made by the hogs were worth \$10.57 per ton of alfalfa consumed.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

## FIELD NOTES.

## North Platte.

The demonstration work on the North Platte Project is in charge of Mr. Charles S. Jones, who is stationed at Mitchell, Nebraska. Mr. Jones' work is confined to the hog industry, which is the leading livestock interest on the Project.

Since the demonstration work was started on the Project last May, the major portion of Mr. Jones' time has been devoted to the eradication of hog cholera. About 3500 hogs had been vaccinated by Mr. Jones up to September 20. The results have been very satisfactory. In one locality where 850 hogs in infected herds were treated only 16 were lost. This is an exceptionally good showing, but in practically all cases, the results have been excellent.

The serum used in the cholera work on the Project is furnished by the State serum plant at Lincoln.

Mr. Jones has arranged with several farmers for a trial of self feeders in finishing their hogs for market this fall.

Under date of August 25, a one-page circular letter was sent out from the Washington office to the water users on the North Platte Project, calling attention to Department Bulletin No. 133, by Mr. Knorr, on the subject of fall irrigation. The bulletin discusses the results obtained in the fall irrigation experiments at the Scottsbluff Experiment





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Demonstrations on Reclamation Projects.  
FIELD NOTES.

## North Platte(continued).

Farm during 1911, 1912 and 1913.

While the hog cholera situation is still serious, the disease has not recently made its appearance to a particularly alarming extent in any one locality. The farmers are becoming increasingly willing to cooperate with Mr. Jones, and it seems likely that the disease will be kept in control.

## Truckee-Carson.

Mr. L. E. Cline, of Missouri, reached the Truckee-Carson Project September 22, to take charge of the demonstration work. His headquarters will be Fallon.

The work on this Project will be directed chiefly toward the establishment of the dairy industry. Approximately one-third of the farmers on the Project are already actively engaged in dairy farming, and many more are expected to take up dairying within the next year or two.

A three-page circular letter giving some general suggestions regarding the development of the dairy industry on the Project was sent to the water users from the Washington office, September 17.

## Minidoka.

The demonstration work on the Minidoka Project (Idaho) will be carried on by Mr. E. F. Rinehart, who has resigned his position as Field Animal Husbandman for the University of Idaho in order to take up the work for this office. Mr. Rinehart's appointment took effect October 1.

The headquarters of Mr. Rinehart will be either at Rupert, on the North Side (Gravity) Unit, or Burley, on the South Side (Pumping) Unit, depending upon which place affords the better advantages and fa-



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Demonstrations on Reclamation Projects.  
FIELD NOTES.

Minidoka (continued).

cilities for carrying on the work. Temporary headquarters will be established at Rupert.

Work in dairying and hog production will be taken up first; but it is expected that special campaigns will later be carried on in other industries.

Huntley.

On September 10 a two-page circular letter was sent from the Washington office to the water users on the Huntley Project, calling attention to the results which have been obtained by the office of Western Irrigation Agriculture near the town of Worden in experiments with methods of reclaiming the alkali lands of the Project. Attention was also called to Department Bulletin No. 135, by Mr. Hansen, in which the Worden experiments are reported in detail.



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WESTERN IRRIGATION AGRICULTURE.

## FIELD NOTES.

Huntley.

During the week ending September 26, harvesting of sugar beets in fields K, B and C was completed. Weather conditions have been excellent for beet harvest and this work is well under way on all parts of the Project.

As a result of the recent rise in price of sugar the Billings Sugar Company has granted the farmers the same price scale for beets as was paid in 1913, thereby increasing the price about 50¢ per ton over the contract.

Mr. J. M. Stephens visited the Station on the 5th.

Irrigated Rotation Field.

Four of the hogs that have been on the alfalfa pasture were placed on the corn plat in rotation 67. The total weight of these hogs at the time they were placed on the corn plat was 345 pounds.

Harvesting of beet and corn plats was completed.

Yuma.

During the week ending September 19, the maximum temperature was 103, minimum temperature 55, greatest daily range 45.

The following plats were harvested: D-18, 23 and 43 (alfalfa); E-7 and 8 (cowpeas); A-1 and 2, D-10, 39 and 44 (sorghum); C-23 (sudan grass); C-21 and 22 (seed hemp); D-12 and 15 (cotton).

Cowpeas in the fig orchard were plowed under. Sorghum plats D-8, 9, 37, 40 and 42 were cultivated; also, A-10 and date nursery.

Part of C-18 (pomegranates) was given a second spraying of Bordeaux mixture.

Sorghum stalks were cut and removed from D-8, 9 and 39.

Eucalyptus and dates were hoed on roads 9 and 10.





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Western Irrigation Agriculture.  
FIELD NOTES.

## Yuma (continued).

D-35 was plowed, and A-16 and 17 (date lands) were disced.

A portion of the irrigation system is being cleaned of silt and grass.

The shingles recently laid on the station buildings are being stained.

Twenty-four acres were irrigated.

During the week ending September 26, the maximum temperature was 106, minimum temperature 62, and greatest daily range 42.

Three men and two teams worked two and one-half days cleaning out the north government lateral.

Threshing was started and small plats of oats, sudan grass, and alfalfa have been run out.

Plats D-39 and 44 were cleared of sorghum stalks.

Sorghum was harvested from A-1 and 2; alfalfa from D-20 and 24; and second crop of seed alfalfa from C-27, 43 and 45.

Cowpeas sown on date lands A-18 to 21 were plowed and disced.

The deciduous orchard was disced.

Sorghum on A-24 and C-37 to 40 was cultivated; also, A-5 (corn) and A-15g (grapes).

Strawberry planting was made on A-12g.

Twenty-seven acres were irrigated.

## Umatilla.

During the week ending August 15, the maximum temperature was 104, minimum temperature 46, and greatest daily range 47.

A number of different sprays were applied in the orchards to test their relative value in keeping the grasshoppers away from the trees.

The hogs from the feeding experiment were taken off the alfalfa plats and replaced by four more. The



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Western Irrigation Agriculture.  
FIELD NOTES.

## Umatilla (continued).

results of the first feeding experiment will be reported later.

During the week ending August 22, the maximum temperature was 96, minimum temperature 46, and greatest daily range 38.

A number of shipments of egg plants were sent out to the various markets of the northwest to determine the best methods of packing, the size of the plants most desired by the consumer, and the best markets.

The sweet clover from Field D4 was threshed, yielding 46 pounds from the acre. Quite a large percentage of the seed had shattered.

The four hogs from the first feeding experiment were shipped to the Portland market. They sold for \$9.25 per hundred at Portland.

During the week ending August 29, the maximum temperature was 93, minimum temperature 42, and greatest daily range 45.

A4 (rotation on commercial fertilizer plats) was seeded to red clover, which is to remain for two years.

The straw and stubble from the sweet clover in D4 was disked in and the ground irrigated.

D3 was sown to a cover crop of Vicia villosa.

During the week ending September 5, the maximum temperature was 91, minimum temperature 45, and greatest daily range 45.

The corn variety test was harvested.

More egg plants were shipped in the marketing experiments.

The vetch stubble and straw in field B3 was disked in and irrigated.

During the week ending Sept. 19, the maximum temperature was 73, minimum temperature 37, and greatest daily range 30.





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Western Irrigation Agriculture.  
FIELD NOTES.

Umatilla (continued).

The last of the watermelon variety test was picked. Mammoth Iron Clad and Klecky Sweet were the best domestic varieties. S.P.I. #27,987-Citrullus vulgaris and S.P.I. #29,244-Citrullus vulgaris were the best imported varieties.

The commercial peach orchard, D5; the grape vineyard, B5; and A3 were sown to a cover crop of Vicia villosa.

Due to the poor quality of seed of the other potatoes in the variety test, White Peach Blow was the only successful variety. They were harvested during the week.

Weather observations until the killing frosts were commenced on the hill in D4.

During the week ending September 26, the maximum temperature was 88, minimum temperature 39, and greatest daily range 44.

The fourth crop of alfalfa was cut during the week.

Field C2 was irrigated and sown to Vicia villosa.

Truckee-Carson.

During the week ending September 26, the maximum temperature was 89; minimum temperature 33; precipitation, trace.

The corn varieties grown on the farm of A. R. Merritt were harvested and weighed. A report on the yields will be given later. The hauling and stacking of the alfalfa hay was completed. A statement of the yields of all plats and of the alfalfa varieties is included herewith.

Mr. L. E. Cline arrived on the 22nd, to take charge of the demonstration work on the Project.



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Western Irrigation Agriculture.  
FIELD NOTES.

Truckee-Carson (continued)

Table showing yields of 3rd. cutting of alfalfa  
varieties on H18.

Variety	Series I pounds	Series II pounds	Total pounds.
1. Caucasian	47	43	90
2. Arabian	49	41	80
3. Peruvian	43	36	79
4. Grimm	57	44	101
5. Sand Lucerne	65	34	99
6. Turkestan	32	39	71
7. Montana	54	35	89
8. Canadian	51	42	93
9. Western Grown	51	46	97
10. Provence	50	42	92
11. Elche	51	37	88

Table showing results of first, second and third  
cuttings of alfalfa varieties on H18

Variety	1st cutting	2nd cutting	3rd cutting	Total
1. Caucasian	?	134	90	?
2. Arabian	93	61	80	234
3. Peruvian	145	156	79	380
4. Grimm	168	169	101	438
5. Sand Lucerne	155	140	99	394
6. Turkestan	164	126	71	361
7. Montana	156	147	89	392
8. Canadian	160	148	93	401
9. Western Grown	172	147	97	416
10. Provence	171	131	92	394
11. Elche	52	124	88	264



Western Irrigation Agriculture.  
FIELD NOTES.

Truckee-Carson (continued).

Yield of alfalfa from all plats.  
3rd. cutting-1914.

Field	Area, acres	Yield per acre, pounds	Field	Area, acres	Yield per acre, pounds
A-5	.23	1370	H-5	.30	1700
D-13	.43	1105	6	.24	854
E-1	.51	765	7	.45	244
2	.51	1637	10	.45	2958
3	.51	1137	11	.44	580
F-1	.54	1333	12	.35	1714
2	.45	578	13	.23	2671
3	.54	1212	14	.35	2657
4	.54	1518	15	.37	2891
5	.54	2335	16	.43	2792
6	.54	2168	17	.52	2346
7	.54	1037	19	.60	1750
8	.54	1685	20	.60	642
H-1	.66	2772	21	.39	1666
4	.36	1597	22	.39	1794

Yields

Yields obtained in variety test of onions  
on Geo. Burton's ranch.

Variety	Area, acres	Yield per acre, pounds
Mammoth Silver King.....	.01463	35670
Large Red Globe .....	.01147	34980
Large Red Wethersfield.....	.01171	32880
Southport Large White Globe...	.01171	26900
Flat Danvers .....	.01147	26850
Red Wethersfield.....	.01125	32800
Extra Select Ohio Yellow Globe	.01113	37450
Select Yellow Globe Danvers....	.01125	31800
Southport Yellow Globe.....	.01135	30750
Mammoth Yellow Prizetaker.....	.01147	51380
Australian Brown .....	.01182	27600





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Western Irrigation Agriculture.  
FIELD NOTES.

Huntley.

During the week ending October 3, harvesting of sugar beets in field M was completed.

Alfalfa seed in field A-IV was harvested. Alfalfa in fields B-II and B-III was crowned.

Irrigation Rotation Field.

Hauling manure was completed on field K. Fall plowing was begun the latter part of the week.

The following data were obtained from the beet crop on field K for 1914, and the averages are compared with those obtained in 1913.

Rotation No.	Preceding Crop	Tons per acre	% Sugar	% Tops	Stand	Weight per beet, ozs.
2	Beets(cont.)	8.17	17.8	30.3	19200	13.60
18	Wheat	9.56	17.6	34.8	24368	12.48
20	Potatoes	15.09	17.5	38.5	29888	16.16
21	Potatoes-manure	14.40	16.9	38.5	28672	16.00
22	Oats	10.38	18.3	34.7	27888	11.84
23	Oats-manure	12.60	19.3	30.8	29776	13.44
30	Oats	6.67	16.8	30.0	29136	7.20
31	Oats-manure	12.80	14.8	35.5	27152	14.88
32	Oats	6.82	17.5	33.5	26448	8.16
40	Potatoes	13.91	17.2	36.7	28688	15.52
42	Oats	9.30	16.9	43.2	26608	11.20
60	Oats	9.28	16.8	33.5	28624	10.24
61	Oats-manure	13.57	17.5	30.4	29088	14.88
67	Flax	13.78	15.2	43.0	25872	16.96
Average.....		11.16	17.2	35.2	27243	13.04
Average in 1913.....		13.08	15.6	29.8	26247	15.80



10 October, 1914.

Western Irrigation Agriculture.  
FIELD NOTES.

## San Antonio.

During the week ending October 3, the maximum temperature was 88, minimum temperature 52, and greatest daily range 32. There was no precipitation.

Field work for the week consisted in hauling hay, plowing, harrowing, and picking cotton.

All of the fallow plats in the rotation experiments were harrowed as well as other land. Fallow land on fields B3, C3 and D3 was disked to kill Johnson grass. Cultivation of orchards was completed. Plowing of the milo stubble on field C5 was completed. Land on D3 which was planted to garden crops this season was also plowed. Miscellaneous patches of cotton were picked. The Chinese corn on AB8 was gathered.

Cutting of cotton stalks was started. The second crop of Sudan grass for seed on field C3 was cut.

Messrs. O. F. Cook and R. M. Meade arrived at the station on the 5th, and Mr. G. N. Collins on the 8th.

Messrs. Cook, Collins and Gilbert left the station on the night of the 8th for points in Arizona and California. Messrs. Meade and Davidson left for northern Texas and Tennessee on the morning of the 9th.

## Scottsbluff.

During the week ending October 3, plowing of the dry land rotation plats was continued.

The potatoes on field K were harvested, with the exception of four plats which produced alfalfa in 1913. The vines on these plats were so large that the diggers choked going through the rows. It will be necessary to wait until the vines die down and dry up a little more before the harvesting can be continued.

Mr. Zook visited the farm during the week and harvested the corn varieties. The yields of these





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Western Irrigation Agriculture.  
FIELD NOTES.

Scottsbluff (continued).

varieties can not be given until the air-dry weights have been determined.

The picnic held at the Station on the 29th of September was well attended. A permanent picnic association has been organized and the men and women organized into respective committees.

Dean Burnett, of the State University, and Regent Coupland spent two days on the Farm and in the Valley.

Report of the dairy work from Sept. 1  
to Sept. 30.

There has been no opportunity to dispose of the cream during the month. The local stores which had been buying cream during the summer have discontinued.

A number of the farmers are shipping their cream to Billings, Mont. Some of the farmers have arranged with their neighbors to ship their cream in the same cans.

The price paid for butter fat is 23½¢ per lb.

The following table gives the results of the month's dairy work. Cow 2 is practically dry; the other two are doing fairly well.

Cow No.	Name	Total, pounds		Value of Butter fat	Composite test, %
		Milk	Butter fat		
2	Rose	78.6	4.0	\$0.94	5.1
3	Stella	186.5	8.2	1.92	4.4
4	Wonder	331.3	13.0	3.05	3.9
Total		596.4	25.2	5.91	...

Pasture rental ... \$7.00 per acre..... \$1.52

Hay, 700 lbs. .... 4.50 per ton ..... 1.57

\$3.09

As the pasture is getting rather short, it was necessary to feed some hay during the month. As soon as beet harvesting begins, the tops will be fed the cows.



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## DEMONSTRATIONS ON RECLAMATION PROJECTS.

## FIELD NOTES.

## North Platte.

Mr. Jones visited the State Fair at Lincoln, for the purpose of getting acquainted with breeders of high class swine so as to be able to assist farmers on the Project in importing pure bred stock to improve their herds. Four pure bred sires were selected at the Fair and shipped to the Project.

A disease which Mr. Jones and the Nebraska State Veterinarian have been unable to identify has appeared in some of the swine herds on the Project. Specimens have been sent to the Biochemic Division of the Bureau of Animal Industry for identification.

Worms have caused considerable difficulty in some herds. Affected hogs have been treated with santonin and calomel, and the results have been very satisfactory.

During the week of September 26, Mr. Jones revisited seven herds where he had vaccinated 812 hogs. All of the herds were infected at the time of vaccination. The losses amounted to 22 head, or 2.7 percent. The serum used in vaccinating cost \$374.95. It is estimated that the treatment saved the farmers about \$6,000.

Arrangements are being made with a number of farmers to build hog houses on plans furnished by the Department.

## Truckee-Carson.

Mr. Cline is making a livestock survey of the Project, to determine the actual conditions existing on individual farms where dairy cattle or hogs are kept, and also where the settlers expect to engage in dairying or hog production in the near future. The farms lying along the main road from Stillwater to Fernley have already been visited.

Abortion has been found in four dairy herds, and Mr. Cline is making arrangements with the farmers to control the disease.



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Demonstrations on Reclamation Projects.  
FIELD NOTES.

Truckee-Carson (continued).

A movement is on foot looking towards the shipment of at least two trainloads of alfalfa to middle western points, and the railroad has been asked to make a special freight rate. If the movement is successful, it is expected that a large part of the money received for the hay will be used in the purchase of dairy stock and hogs.

Arrangements are being made for yearly tests in a number of dairy herds. It is expected that this work will be started about October 15.





17 October, 1914.

The numbers and titles of four bulletins recently issued by the Agricultural Experiment Station, University of Illinois, Urbana, Illinois, relating to experiments with hogs conducted at that station, are given below:

- 168 A Study of the Development of Growing Pigs.
- 169 A Study of the Ash Content of Growing Pigs.
- 170 Coefficients of Digestibility of Some Common Rations for Swine.
- 171 A Study of the Phosphorus Content of Growing Pigs.

It is suggested that these bulletins may be of interest to the field men engaged in carrying on experiments in hog feeding on the experiment farms conducted by this office. Copies of these bulletins can doubtless be obtained, upon request, from the University of Illinois.

The Civil Service Commission has announced an examination to be held November 10 for the purpose of establishing a register of eligibles for positions in the Office of Demonstrations on Reclamation Projects. The eligibles will be divided into five groups, depending upon which of the following lines of work they are especially fitted for by training and experience: Dairying, hog production, general livestock, horticulture, and irrigated field crops. Graduation from an agricultural college, in which special training was obtained in one of the above named lines, and at least two years' subsequent experience in practical farming or other agricultural work, are prerequisites for consideration for the positions.



17 October, 1914.

Mr. Farrell will leave Washington October 19 for a six weeks' trip to Reclamation Projects in the Northwest, to arrange for the establishment of demonstration work on a number of these projects. His itinerary includes the Lower Yellowstone, Huntley, Shoshone, Tieton, Sunnyside, Umatilla, Truckee-Carson, Miniacka, and North Platte.

### WESTERN IRRIGATION AGRICULTURE.

#### FIELD NOTES.

##### Yuma.

During the week ending October 3, the maximum temperature was 99, minimum temperature, 60, and greatest daily range 37.

The following plats were harvested: A-135, 6, 7; B-13 to 17; C-28, 29, 42, 44; D-17, 21, 25 to 27, alfalfa: A-102, sudan and tunis grass: part of D-6 and 7, sorghum: and D-19, cowpeas. The fig orchard was disced and dragged. F-1, pecan orchard, was disced, and A-18 to 21, date orchard, was hoed.

Threshing of C-21 and 22 (hemp), and B-19, 20 and C-27 and 28 (alfalfa) was completed.

Fruiting notes of fig orchard were taken. The deciduous orchard was cultivated; also, date nurseries and other small plats.

Three days labor was performed digging sandburrs on the station grounds. Three hundred stakes for the deciduous orchard were painted and stenciled. The latter part of the week was too wet for field operations, and the harness was repaired, cleaned and oiled.

Mr. Blair spent several days in the Salt River Valley.

Nineteen acres were irrigated.

##### Truckee-Carson.

During the week ending October 3, the maximum temperature was 83, minimum temperature 37, and precipitation .12 inch.





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Western Irrigation Agriculture.  
FIELD NOTES.

## Truckee-Carson (continued).

Manure was hauled from the corrals to field A1; a part of Field C was cleaned, and the work of filling and leveling around the farmhouse was continued.

The land between the Reclamation Service lateral and the road at the northwest corner of the farm is being leveled.

The results obtained with the second cutting in the time-of-cutting experiment with alfalfa are briefly summarized below. The results with the first crop were reported in the Weekly Bulletin of August 15. The figures given below are the averages of triplicate plats, except in series I and IV, where they are the averages of duplicate plats.

Series	Height, cm.	% Blooms	Length of basal shoots, cm.	Green wt., grams	Dry wt., grams	Loss wt., grams	% Mois- ture	Date cut
I	72	5	3	2227	464	1763	79.2	7/1
II	77	10	3	2170	516	1654	76.3	7/8
III	72	50	3	1747	439	1308	74.8	7/15
IV	76	66	4	1544	428	1116	72.3	7/22
V	72	50	4	1626	445	1181	72.6	7/31
VI	77	100	5	1956	520	1436	73.5	8/5
VII	65	100	6	1837	485	1352	73.7	8/12
Average	73	54	4	1872	471	1401	74.6	

Following are results of ten borings of soil from Plat Y11, the figures being the averages obtained from the three borings.

Depth	Total salts	Na <sub>2</sub> CO <sub>3</sub>	NaHCO <sub>3</sub>	NaCl	Na <sub>2</sub> SO <sub>4</sub>
1st foot	.2374	.0490	.1396	.0129	.0160
2nd foot	.3104	.0963	.1020	.0122	.0235
3rd foot	.2332	.0842	.0816	.0123	.0070
Three feet	.2605	.0764	.1077	.0121	.0154



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FIELD NOTES.

## Belle Fourche.

During the week ending October 10, the maximum temperature was 79, minimum temperature 25, and precipitation .01 inch.

The third year alfalfa plats in the irrigated rotations have been crowned and double disced.

Corn has been husked and hauled in with the exception of one plat, AIII-32.

Corn, potatoes and beets, to be followed with a cultivated crop, have been plowed.

The balance of the week was devoted to building the corn crib and cleaning up about the farm.

Mr. Mathews left for Washington on the 9th of October.

## Scottsbluff.

During the week ending October 10, the weather has been rather unfavorable for the sugar beet harvest which is now in progress. Light showers of rain three nights in succession moistened the tops to such an extent that field work was impossible in the forenoons.

All of the hogs yards were cleaned out and some of them burned over and otherwise disinfected. The hogs have been brought in from the pasturing experiment and put in a dry lot, and are now on experiment on dry lot finishing. The details of this work will be submitted by Mr. Holden.

The odd time was put in digging an underground hole for an ice-box which will probably be built this fall.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

## FIELD NOTES.

## Truckee-Carson.

The work on the Truckee-Carson Project began September 22. The object of the work here will be to





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Demonstrations on Reclamation Projects.  
FIELD NOTES.

Truckee-Carson (continued).

promote the dairy industry and the raising of hogs. These two industries naturally go well together. The principal crop on the Project is alfalfa hay. With a good market, the growing of alfalfa hay would be a very satisfactory system of farming, but owing to the high freight rates incident to shipping hay to markets, where satisfactory prices are available, the impracticability of the one crop system, as alfalfa, is very evident to the farmers. There is no system of livestock farming which will make a more profitable use of alfalfa hay than farming with profitable dairy cows. Dairy farming ordinarily insures a more certain and steady income than any other kind of farming. One big question for the dairy farmer is whether or not his income has sufficient of the real net profit in it. This will depend largely upon the quality of the cows.

Some of the problems that confront a few dairy men on the Project are contagious abortion, black leg, and anthrax. The disease that is likely to be of the greatest importance to the dairy man is contagious abortion. This disease results in premature birth of calves, a failure to breed for a time, and sterility. This disease is communicated largely by means of the bull. It is believed now that it can also be communicated by means of the feed, bedding, etc. One aborting cow in a herd may easily be the source of infection to the whole herd.

Methods of control of contagious abortion are largely in the experimental stage. There are several methods that have been advocated and are now being worked upon, but so far greatest hope lies in avoiding the disease by keeping infected animals out of the herd and by sanitary precautions.

The subject of milking machines is also one that concerns the farmers on the Project at present, as a great many of the dairy men have installed milking machines of the same make. Some are in use, some have been abandoned, and some dairy men are





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## Truckee-Carson (continued).

in doubt as to their value. A practical test of the machine will be made on one of the dairy herds with the hope that some light will be thrown on the subject. Twelve cows will be in the experiment and careful records will be kept of the cows with both hand and machine milking. It is hoped that some information will be secured concerning the influence of machine milking on per cent of butter fat, amount of fat and amount of milk given by the cows, as well as the time required in the operation. In addition to these questions the amount of hay fed will be determined, so that an idea of the amount of hay required for a pound of butter fat or a pound of milk, under local conditions, may be gained.

For the information of farmers contemplating the purchase of dairy cattle and hogs, the Agriculturist will have at his office at the Experiment Farm, at Fallon, a list of breeders of dairy cattle and of hogs of the various breeds with their prices, and also information regarding freight rates from the places stock may be secured.



## WESTERN IRRIGATION AGRICULTURE.

## FIELD NOTES.

Belle Fourche.

The following table shows the yield of the potatoes on the irrigated rotations in field A, harvested Sept. 22 to 26.

Rotation No.	Plat No.	Previous Crop	Stand, hills per acre (thous.)	Yield per acre (bus.)	Percent marketable	Yield in 1913 (bus.)
4	I-27	Potatoes	8	102.0	88.0	96.0
4	III-31	Potatoes	8	131.2	90.0	*
20	I-26	Beets	8	86.4	77.0	128.0
21	I-28	Beets(man.)	8	117.2	93.0	133.0
24	I-34	Oats	8	112.0	95.0	109.3
25	I-36	Oats(man.)	8	101.2	88.0	95.3
26	I-38	Corn	8	116.0	92.5	120.6
27	I-40	Oats(rye)	8	94.4	88.0	114.6
30	I-17	Beets	8	68.0	80.0	74.3
31	I-20	Beets	9	139.6	86.0	90.0
40	I-3	Alfalfa	8	96.0	88.0	88.0
44	III-21	Alfalfa	8	127.2	90.0	176.6
60	I-13	Alfalfa	9	105.2	92.0	97.3
61	II-17	Alfalfa	8	112.4	92.0	139.3
Av.			8.1	107.7	88.9	112.5
Max. Yd. I-20			9	139.6	86.0	90.0
Min. Yd. I-17			8	68.0	80.0	74.3

\* This plat was not included in the rotations last year.

The plats were all fall plowed and the ones that were planted to alfalfa last year were crowned and disked previous to the plowing. They were then harrowed and leveled in the spring, and the seeding was done on May 1. The variety of seed used was the Early Ohio. The hills were planted fifteen inches apart in rows three feet and eight inches apart. During the growing season the plats were cultivated five times, hoed twice, sprayed once, and irrigated three times.





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## FIELD NOTES.

Belle Fourche (continued).

The table shows that the average yield per acre is 4.8 bus. less than last year. This lowering of yield cannot be accounted for any any difference in seasonal or cultural operations. Last year Rural New Yorker potatoes were used, but according to yields made by both the Early Ohio and Rural New Yorker last year, the Early Ohio yielded as well as the Rural New Yorker.

It will be noticed from the table that both the maximum and minimum yields came after beets. The maximum yield was obtained from rotation 31 (oats (man.), beets, potatoes), while the minimum yield was obtained from rotation 30 (oats, beets, potatoes). As these rotations are the same excepting for manure after the oats, it appears that the manure must be an important factor in this particular rotation.

The beets on the irrigated rotations, field A, were harvested Sept. 22 to 30. The yields are given in the following table.

Rotation No.	Plat No.	Previous Crop	Stands, hills per acre (thous.)	Yield per acre (tons)	Weight per beet (ounces)	Yield in 1913 (tons)	Weight per beet in 1913 (ounces)
2	I-45	Beets	33	6.7	6.4	4.7	6.8
2	III-30	Beets	30	6.9	7.3	13.5	*
18	I-25	Wheat	48	9.3	6.0	7.8	9.5
20	I-27	Potatoes	26	11.3	13.7	10.7	13.6
21	I-29	Potatoes	26	14.6	17.9	8.8	10.1
22	I-31	Oats	31	12.3	8.6	7.6	10.2
23	I-33	Oats(man)	26	10.6	12.9	8.3	8.4
30	I-16	Oats	26	10.7	13.1	9.0	10.1
31	I-19	Oats(man)	31	14.2	14.5	9.3	10.4
32	III-10	Oats	35	8.7	7.5	6.5	8.0
40	I-4	Potatoes	33	12.8	12.3	8.5	10.0
42	I-8	Oats	24	11.1	14.7	8.7	11.0
60	I-9	Oats	32	11.2	11.2	8.0	10.3
61	II-13	Oats(man)	29	12.7	12.6	6.0	8.3
62	II-7	Oats	30	10.7	11.3	7.0	9.1
66	II-23	Clover	28	10.5	12.0	5.5	6.1
Av.				30.5	10.89		
Av.			30.5	10.89	11.3	7.8	9.3
Max. Yd. I-29		Potatoes	26.0	14.6	17.9	8.8	10.1
Min. Yd. I-45		Beets	33.0	6.7	6.4	4.7	6.8

\* This plat was not included in the rotations last year.



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FIELD NOTES.

## Belle Fourche (continued).

The plats were fall plowed, disked, and then harrowed and leveled in the spring. The seed was sown on May 6 at the rate of twenty pounds per acre, and the plants thinned on June 10 to 17. The variety of seed used was the Original Klein-Wanseleben. During the growing season the plats were cultivated twice, hoed twice, and irrigated three times.

It is seen from the table that the maximum yield was obtained from rotation 21-potatoes, beets (manure). The table also shows that the second highest yielding plat was in rotation 31-oats (manure), beets, potatoes, which was the highest yielding potato rotation. The effect of continuous cropping upon beets is outstanding.

Rotation No.	Plat No.	Percent sugar	Percent Purity
2	I-45	23.5	95
2	III-30	23.0	94
18	I-25	23.7	92
20	I-27	21.2	84
21	I-29	23.0	97
22	I-31	24.1	94
23	I-33	26.2	87
30	I-16	23.7	89
31	I-19	19.9	84
32	III-10	24.7	93
40	I-4	21.5	89
42	I-8	24.5	97
60	I-9	19.8	82
61	II-13	21.8	82
62	II-7	23.0	80
66	II-23	22.2	91
Average		22.9	89.4
Maximum.....		26.2	97
Minimum.....		19.8	80





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Western Irrigation Agriculture.  
FIELD NOTES.

## Truckee-Carson.

During the week ending October 10, the maximum temperature was 83, minimum temperature 35.

A cement hot-bed was built in the plat beside the greenhouse. The work of building a cold frame has begun.

Winter wheat and rye have been seeded in the "tree plat" at the northwest corner of the Farm. This grain is for the purpose of preventing the blowing of sand in the spring.

A report on the results of the varieties of tomatoes under experiment at the Experiment Farm has been submitted.

## Huntley.

During the week ending October 10, the breaking of the 35-acre tract lying north of the farmstead, and of the 20 acres of dry land east of field D was begun.

The first killing frost of the season occurred October 6, the temperature recorded being 31 degrees.

Readings of the water levels in wells on the Worden Tract on October 1 were as follows:

Well No.	Depth to water, ft.	Difference since Sept. 15
A-1	2.76	.57 rise
2	2.98	.68 "
3	3.37	.40 "
B-1	3.22	.45 "
2	3.32	.41 "

Soil samples for salt determinations were taken on the Worden Tract.





Western Irrigation Agriculture  
FIELD NOTES.

Huntley (continued).

The following table shows the yields of sugar beets in the distance-of-planting and thinning test on field BVI, each figure being the average of three plats.

Width of Rows	Distance thinned	Tons per acre	Stand, plants per acre	Sugar content, percent	Weight ozs. per beet
18	8.4	17.08	41,693	16.7	13.2
18	11.3	14.48	30,787	17.3	15.2
18	13.0	15.84	25,600	16.7	19.4
18	17.5	15.38	19,973	16.5	24.9
18	19.9	15.84	17,440	16.4	29.2
20	9.1	15.36	34,308	16.3	14.4
20	12.3	15.61	25,488	17.2	19.5
20	14.3	16.71	21,888	16.1	24.4
20	17.9	17.14	17,448	15.9	31.4
20	21.4	17.70	14,556	15.6	38.9
24	8.3	18.68	31,590	16.0	18.8
24	13.1	18.55	20,220	15.9	29.4
24	14.8	17.82	14,287	16.0	32.4
24	17.7	17.75	14,760	15.4	38.3
24	20.4	17.44	12,770	16.4	43.9

SUMMARY

		Distance thinned	Tons per acre	Stand, plants per acre	Sugar content percent	Weight ozs. per beet
Av.						
	9 plats	8.5	17.70	35,864	16.3	15.5
	9 plats	12.2	16.21	25,488	16.8	21.4
	9 plats	14.0	16.79	20,592	16.3	25.4
	9 plats	17.7	16.76	17,394	15.9	31.5
	9 plats	20.6	16.99	14,922	16.1	37.3
Av.	18" plats.....		15.72	27,099	16.7	20.4
	20" plats.....		16.50	22,738	16.2	25.7
	24" plats.....		18.05	18,725	15.9	32.6



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FIELD NOTES.

## Huntley (continued)

The table shows that the highest yield is from 24" row thinned to 6 inches apart in the row, the average yield of 3 plats being 18.68 tons per acre. Considering the yields from the different widths of row regardless of distance of thinning, the best yield was obtained from the 24" rows; the average of 15 plats being 18.05 tons per acre. The best distance of thinning, regardless of the width of row was 8.5", the average yield of 9 plats being 17.70 tons per acre.

The land on which these beets were grown was cropped to alfalfa in 1913, and sugar beets in 1912. Beets were planted May 6. All plats were irrigated on July 20 and August 11. Harvesting was done September 24 to 26.

Supplementing his report on the results secured with sugar beets on Field K this year, which was contained in the October 10 issue of the Weekly Bulletin, Mr. J. W. Knorr, in a letter to Mr. Farrell, dated October 14, has the following comments to make concerning the tests.

"The results as you have probably noted already are not at all consistent with those obtained in 1913. The continuous beets for this season had about two-thirds of a stand owing to insect attacks early in the season. While the yield is smaller this year I would not emphasize the fact that it is due to continuous cropping.

Beets following oats (without manure) gave the poorest results. The five plats following oats and the plat following wheat in rotation 18 showed a less vigorous appearance throughout the growing season. In rotations 30, 32 and 60 the plats assumed a yellowish color, immediately after the first irrigation, July 15, and the growth of tops was practically at a standstill for the remainder of the season.

The plat following flax was just opposite with respect to growth of tops. About one-third of the plat had a very rank growth, which perhaps reduced





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FIELD NOTES.

Huntley (continued).

the yield to some extent.

The most interesting results were those obtained from the sequences : oats (manure), potatoes (manure) and potatoes (without manure). The yields were higher following the cultivated crop. Potatoes without manure proved a better sequence than did oats with manure and practically the same as potatoes with manure.

The manurial effect is very apparent in the plats following oats."

Table showing comparative yields and stands of sugar beets for the years 1913 and 1914.

Rotation No.	Yield per acre		Stand per acre	
	1913	1914	1913	1914
	(tons)			
2cc	9.25	8.17	25,888	19,200
18	9.46	9.56	22,080	24,368
20	12.57	15.09	27,424	29,888
21	13.33	14.40	29,368	28,672
22	15.22	10.38	25,136	27,888
23	13.36	12.60	27,392	29,776
30	11.39	6.57	25,312	29,136
31	15.32	12.80	29,568	27,152
32	11.26	6.82	26,592	26,448
40	13.34	13.91	24,640	28,688
42	14.38	9.30	23,728	26,608
60	11.63	9.28	28,256	28,624
61	15.76	13.57	26,112	29,088
67	<u>16.80</u>	<u>13.78</u>	<u>25,968</u>	<u>25,872</u>
Average	<u>13.08</u>	<u>11.16</u>	<u>26,247</u>	<u>27,245</u>



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FIELD NOTES.

## Huntley (continued)

• Table showing effect of different crop sequences.

Preceding Crop	Number of plats	1914			1913
		Highest Yield	Lowest Yield	Average Yield	Average Yield
Flax	1			13.78	16.80
Oats	5	10.38	6.59	8.47	12.77
Oats(man.)	3	13.57	12.60	12.99	14.81
Potatoes	2	15.09	13.91	14.50	12.95
Potatoes(man.)	1			14.40	13.33
Wheat	1			9.56	9.46
Beets(cont.)	1			8.17	9.25
<u>All plats were fall plowed.</u>					

## Scottsbluff.

During the week ending October 17, the weather continued fair with several cold mornings, the thermometer registering as low as 20 degrees.

The digging of potatoes on Field K and the other varieties was completed the first part of the week.

All of the sugar beets except four plats on Field K have been harvested.

Three men began husking corn on Field K, and two men started trimming up the trees in the wind-break.

The foundation for the ice house was almost completed, and the cement work will be started the following week.

A complete report of the results obtained in the sugar beet experiments has been received from Mr. Knorr.





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FIELD NOTES.

## Scottsbluff (continued).

Under date of October 10, Mr. Holden submitted the following brief statement concerning the hog pasturing experiments.

"The alfalfa pasturing experiments closed Oct. 6. During the last 130 days of the experiment there were only three hogs on rotation 65, one on Lot 1, two on Lot 2, four on Lot 3, and three on Lot 4. Following are the total results for the 90-day period (July 8 to October 6).

	Total Grain	Grain fed, pounds
Rot. 65, 2% corn	475	1162
Lot 1, no grain	102	
Lot 2, 1% corn	252	495
Lot 3, 3% corn	735	2202
Lot 4, 2% barley	435	1058

One pig in Lot 1 that weighed 15 pounds at the beginning of the experiment died Sept. 5. It seemed unable to "make it" on alfalfa pasture alone. If its weight is charged against this lot, then Lot 1 only made 87 pounds.

The corn hogging experiment, as was outlined, began Sept. 9. The corn field was divided into 6 plats of about 1/3 acre each. The yield of each plat was estimated. Three hogs were turned on each plat. These hogs were from the hogs that were taken off the alfalfa pasturing experiment, there being in each of the 6 lots one hog from the 3% corn lot, one from the 2% corn lot, and one from the 2% barley lot. These hogs are now being weighed each week. Following are the results of the corn hogging experiments up to Oct. 6

	<u>Weight in pounds.</u>		
	<u>Sept. 9</u>	<u>Oct. 6</u>	<u>Gains</u>
Lot 1-Corn and alfalfa pasture	273	393	120
2-Corn.....	267	375	108
3-Corn and .8% tankage.....	264	413	149
4-Corn and .8% tankage.....	270	402	132
5-Corn.....	268	379	111
6-Corn and alfalfa pasture	268	387	119





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Western Irrigation Agriculture.  
FIELD NOTES.

## Scottsbluff (continued).

On October 9 the following experiment to determine the value of sugar beets as a feed for hogs was begun. There are 6 hogs in each lot.

Lot 1 - 4% corn and alfalfa hay.

2 - 3% corn, alfalfa hay, and sugar beets.

3 - 2% corn, alfalfa hay, and sugar beets.

A more detailed report on this experiment will be sent in later.

## San Antonio.

During the week ending October 10, the maximum temperature was 95, minimum temperature 62, and greatest daily range 32. The weather was very warm and oppressive and threatened rain, but there was no precipitation.

The remainder of the sorghum from the rotation plats was hauled in and weighed. Odds and ends of hay from various fields were hauled in and stacked near the barn.

With the exception of one small patch of cotton on B4, all cotton stalks were either cut or plowed out during the week. Some of the cotton bore a considerable number of half-grown bolls, but on close examination, a very large proportion of the bolls were found to be badly infested with boll weevil larvae, and it was decided best to dispose of the plants rather than to allow the bolls to mature. Some bolls examined contained from four to eight nearly grown larvae. By destroying the plants at this time, the number of boll weevil to go into hibernation should be reduced to a minimum.

Oat stubble on B5-8 was plowed.

Plats A4-13 & 17, and A5-9, 13 and 17, from which the cotton stalks were cut and removed, were plowed to put in readiness for seeding oats. Plowing of Field C4 was started. Several of the farm roads were disked as was also the fallow land on Field A3. Some time was spent in cutting small patches of Johnson grass along roads, in orchards



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FIELD NOTES.

San Antonio (continued).

and in fallow fields.

The yields of cotton from the rotation plats which have not yet been reported are shown in the accompanying table.

Plat No.	First Picking		Second Picking		Total pounds		No. of plants per A.	% of Stand
	Date	Pounds	Date	Pounds	per Plat	per Acre		
A4-2	8/17	55.5	9/3	47.5	103.0	412	11,640	73.6
A4-8	8/17	60.0	9/3	42.5	102.5	512.5	9,205	58.0
A4-13	8/17	101.0	9/3	46.5	147.5	590.0	12,588	79.5
A4-17	8/17	110.0	9/4	35.5	145.5	582.0	14,328	90.5
A4-19	8/18	120.5	9/4	37.5	158.0	632.0	12,796	80.8
A5-3	8/18	141.0	9/8	41.0	182.0	728.0	16,236	102.5
A5-6	8/18	149.0	9/8	30.0	179.0	716.0	13,916	87.9
A5-7	8/18	124.5	9/8	25.0	149.5	598.0	16,208	102.2
A5-9	8/18	114.0	9/8	27.0	141.0	564.0	15,840	100.0
A5-11	8/18	139.5	9/8	27.5	167.0	668.0	14,496	91.5
A5-13	8/19	129.0	9/10	30.0	159.0	636.0	15,032	95.0
A5-15	8/19	158.0	9/10	27.0	185.0	740.0	14,088	88.9
A5-17	8/19	136.0	9/10	32.5	168.5	674.0	15,116	95.5
A6-3	8/19	166.5	9/10	74.5	241.0	964.0	15,572	98.3
B4-14	8/19	136.0	9/9	69.0	205.0	820.0	13,240	83.5
B4-17	8/19	126.0	9/9	33.5	159.5	638.0	13,628	86.0
B5-3	8/20	131.0	9/9	50.0	181.0	724.0	14,572	92.0
B5-4	8/20	143.5	9/9	48.5	192.0	768.0	13,764	86.9
B5-10	8/20	115.5	9/10	47.0	162.5	650.0	14,236	90.0
B5-12	8/20	121.0	9/10	56.0	177.0	708.0	14,316	90.4
B5-18	8/20	174.0	9/10	75.5	249.5	998.0	13,896	87.7
B6-1	8/20	156.5	9/10	73.0	229.5	918.0	13,756	86.8
B6-3	8/21	164.0	9/10	92.0	256.0	1024.0	13,484	85.0
B6-5	8/21	231.5	9/11	129.5	361.0	1444.0	11,948	75.5
B6-7	8/22	228.0	9/11	130.5	358.5	1434.0	12,020	76.0
B6-9	8/22	191.5	9/11	155.5	347.0	1388.0	13,292	83.9
B6-11	8/21	130.0	9/11	70.5	200.5	802.0	14,568	91.8
B6-13	8/21	132.0	9/12	58.0	190.0	760.0	15,744	99.5
B6-15	8/21	115.0	9/12	67.0	182.0	728.0	14,792	93.5
B6-17	8/21	101.0	9/14	71.5	172.5	690.0	15,724	99.5
Average						783.7	14,001	88.4





24 October, 1914.

Western Irrigation Agriculture.  
FIELD NOTES.

San Antonio (continued).

With the exception of the season of 1908, the average yield of seed cotton was the highest obtained in the history of the station.

The highest yield was obtained from plat B6-5, which is in a two-year rotation of corn and cotton, with manure following the corn.

The lowest yield was obtained from plat A4-2, where the treatment is biennial cropping and fallow.



31 October, 1914.

## WESTERN IRRIGATION AGRICULTURE.

## FIELD NOTES.

## Belle Fourche.

During the week ending October 17, the maximum temperature was 82, minimum temperature 25, and precipitation .43 inch.

The week was devoted to husking corn, building corn crib, and repairing irrigation ditches.

The fall plowing is all completed except to replot the alfalfa plats in the irrigated rotations.

The following table shows the yields of the corn in the fall-irrigation experiment, field P.

Plat number	Fall irrigated		Not fall irrigated	
	Grain	Stover	Grain	Stover
	Bushels	Tons	Bushels	Tons
I-12	....	....	47.2	2.2
II-12	53.4	1.2	....	...
III-12	....	....	51.4	2.1
IV-12	45.8	0.9	....	...
Average	48.1	1.05	49.5	2.15

The plats were all fall plowed and plats II-12 and IV-12 were fall-irrigated on Nov. 11. In the spring all plats were disked, harrowed and leveled. The seeding was done on May 14. The variety used was Paynes White Dent. The seed was drilled in rows three feet and eight inches apart and the plants thinned on June 19 to a distance of ten inches in the row. During the summer all the plats were cultivated three times, hoed once and irrigated three times. The corn was harvested on Sept. 23 and shocked and husked in the field.



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Western Irrigation Agriculture.  
FIELD NOTES.

Belle Fourche (continued).

Rotation number	Plat number	Previous crop	Stand, stalks per acre	Yield per acre.			
				1914		1913	
				Grain (Bus)	Stover (Tons)	Grain (Bus)	Stover (Tons)
6	I-49	Corn	17,000	52.1	1.7	39.4	1.0
6	III-32	Corn	20,000	51.1	2.2	(a)	
16	I-22	Oats	18,000	48.8	2.0	33.1	1.1
26	I-39	Potatoes	20,000	44.4	2.2	21.6	1.1
32	III-11	Beets	16,000	32.5	1.2	30.5	.9
62	II-11	Alfalfa	17,000	44.4	1.7	32.3	1.3
65	III-17	Alfalfa	19,000	(b)		(c)	
66	II-26	Barley	19,000	39.4	1.5	43.0	(d)
Average			18,000	44.6	1.7	34.0	1.2
Maximum yield	I-49	Corn	17,000	52.1	1.7	39.4	1.0
Minimum yield	III-11	Beets	16,000	32.5	1.2	30.5	.9

(a) This plat was not included in the rotations in 1913.

(b) 582 pounds of pork (hogged).

(c) 560 pounds of pork (hogged).

(d) Stalks were left standing.

The plats were plowed and disked in the fall of 1913 and those having alfalfa on them were crowned previous to the plowing. In the spring they were harrowed and leveled and the corn planted May 9. The variety of seed used was North Western Dent. The seed was drilled in rows three feet and eight inches apart, and on June 18 was drilled down so that the stalks were ten inches apart in the rows. During the summer the corn was cultivated five times and irrigated four times.





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Western Irrigation Agriculture.  
FIELD NOTES.

Belle Fourche (continued).

All plats except II-26 were harvested on Sept. 17. Plat II-26 was harvested on Sept. 23. The corn was shocked and husked in the field.

The hogs on rotation 65, field A, were turned on the corn plat on Sept. 23 and left until Oct. 12, when the corn had all been consumed by the hogs. The gains made are given in the following table.

Dates	No. of days	No. of days	Initial weight (Lbs)	Gains			Value of gain	Net return per acre
				% Daily	per day per hog (Lbs)	Total		
9/22-10/12	20	4	427.0	1.4	1.8	145.5	\$10.18	\$40.72

The yield per acre of the corn plat, estimated by the method recommended in the Weekly Bulletin for January 17, 1914, was 34.8 bushels. If this yield is correct, the hogged corn sold for \$1.17 per bushel.

Yuma.

During the week ending October 10, the maximum temperature was 88, minimum temperature 50, and greatest daily range 38.

Sorghum stalks from grain varieties on A-1 & 2 were harvested and weighed for variety comparison. The latest sorghum variety on D-10 was harvested. Cowpeas of variety tests on D-19 were harvested and green weights recorded, also, cowpeas on A-23 & 24 were plowed under as a green manure crop.

The first picking of Durango cotton on D-13 (thinning test) was begun this week.

Hemp seed produced on borders C-20 & 21 was re-cleaned and weighed.

Various planting and thinning methods produced



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Western Irrigation Agriculture.  
FIELD NOTES.

Yuma (continued)

seed yields as follows:

Strain	Row space (inches)	Thinning space (inches)	Area (acres)	Plat yield (pounds)	Yield per acre (pounds)	Average yield per acre (pounds)
Yuma	44	12	.0401	3.0	74.9	....
do	44	24	.0368	3.44	93.5	....
do	44	36	.0425	5.81	144.2	....
do	44	48	.0377	2.25	59.7	....
Kentucky	44	12	.0401	2.44	60.9	....
do	44	24	.0368	3.38	91.9	....
do	44	36	.0425	2.56	63.6	....
do	44	48	.0377	1.56	41.4	....
Minnesota #8	44	12	.0601	5.00	83.2	....
do	44	24	.0552	3.687	66.9	....
do	44	36	.0607	4.375	72.0	....
do	44	48	.0566	5.687	100.4	....
Yuma	22	12	.0202	3.0	148.5	....
do	22	12	.02	2.06	102.8	125.7
do	22	24	.0188	2.38	126.5	....
do	22	24	.0184	2.75	149.2	137.9
Kentucky	22	12	.0202	2.44	120.7	....
do	22	12	.02	.56	27.9	74.3
do	22	24	.0188	2.69	142.5	....
do	22	24	.0184	2.31	125.1	133.8
Average yield per acre - Yuma strain.....					106.0	
" " " " - Kentucky strain..					77.7	
" " " " - Minnesota #8						
strain.....					80.6	

All yields are very low. These differences may not be a just indication of seed production when bird injury and uneven soil is considered, but it has been well demonstrated during the past three seasons that profitable production of hemp seed can not be expected in this section, unless large plantings are made, sufficient to supply bird food at this season without a high percent





31 October, 1914.

Western Irrigation Agriculture.  
FIELD NOTES.

Yuma (continued).

of loss. This damage is not deferr  
of loss. Special protection to shocks after har-  
vest does not save the crop since considerably dam-  
age is caused by the birds before the seed is ripe.

The Yuma strain produced a higher average yield  
than either the Minnesota #8 or Kentucky selections.  
This strain was originally from Kentucky but has  
been grown in this climate for three years; also,  
the test has indicated that 44 inches is more space  
than required between rows for seed yields, 24 to  
36 inches being the optimum thinning space.

Cowpeas harvested from E-7 & 8 on August 20  
for green manure crop variety experiment gave com-  
parable results as follows:

Variety	Plat yield green weight (pounds)	Plat area (acres)	Determined percentage air-dry hay	Green weight	Average green weight	Dry weight	Average dry weight
Groit	580	.04132	18.4	7.02		1.29	
Groit	495	"	16.65	5.99	6.5	1.00	1.15
Clay	355	"	17.2	4.3		.76	
Clay	285	"	16.7	3.45	3.9	.58	.67
Unknown	530	"	17.2	6.41		1.10	
Unknown	410	"	17.1	4.97	5.7	.85	.97
Black Eye	415	"	15.9	5.02		.80	
Black Eye	350	"	16.1	4.23	4.6	.68	.74
New Era	450	"	23.8	5.45		1.30	
New Era	490	"	19.05	5.93	5.7	1.13	1.21

This was practically new land, a small plat of  
cotton having been grown on a part of the border the  
preceding season. Approximately 2.9 acre feet of wat-  
er was applied to this crop in six irrigations. Var-  
ieties were seeded in three ft. rows May 4, 1914. The  
varieties New Era and Groit have shown conspicuously  
throughout the season to be superior for green manure.



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Western Irrigation Agriculture.  
FIELD NOTES.

Yuma (continued).

The variety Whippoorwill, not included in this report, is a near competitor of these, and is included in a late planting of this series.

Mr. Blair spent four days in Imperial and Coachella Valley cotton fields.

Mr. Argyle McLachlan spent two days at the station.

Only six acres of land were irrigated during the week.

Huntley.

During the week ending October 17, the fourth cutting of alfalfa in field A-I was harvested. Corn in field B-V and in the orchard was cut and shocked.

Grain stubble in field C was plowed.

Weather conditions have been excellent for beet harvest and many of the Project farmers will soon have their crop delivered at the dump.

Irrigated Rotations.

Potatoes were harvested during the week and the results obtained are given below:

Rotation number	Preceding Crop	Pounds per plat	Bushels per acre	Stand, plants per acre	% Marketable tubers
4 CC	Potatoes	1775	118.3	5744	79.3
20	Beets	2680	178.7	6168	85.2
21	Beets(man.)	2640	176.4	6736	79.2
24	Oats	2571	171.4	6000	86.9
25	Oats(man.)	3019	201.3	4464	90.3
26	Corn	2068	204.5	6544	84.3
27	Oats(rye)	82	5.5	852	59.8
30	Beets	2344	156.3	4864	84.3
31	Beets	2106	140.4	5496	83.3
40	Alfalfa(2)	2341	156.1	5380	89.3
44	Alfalfa(2)	2929	195.3	5800	92.0
60	Alfalfa(3)	4400	293.3	5968	87.7
61	Alfalfa(3)	2760	184.0	4936	90.6
Highest.....			293.3	6736	92.0
Lowest.....			5.5	852	59.8
Average.....		2516.5	167.8	5296	83.9



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Western Irrigation Agriculture.  
FIELD NOTES.

Huntley (continued).

Table showing stand and yield of potatoes,  
1914

Preceding Crop	Number of plots	Highest yield	Lowest yield	Average yield
Alfalfa .....	4	293.3	156.1	207.2
Corn .....	1			204.5
Oats (man.).....	1			201.3
Beets (man.).....	1			176.0
Oats.....	1			171.4
Beets .....	3	178.7	140.4	158.5
Potatoes .....	1			118.3
Oats (rye) .....	1			5.5

Comparative yield and stand of potatoes  
1913 and 1914

Rotation No.	Yield		Stand	
	1913	1914	1913	1914
4cc	193.8	118.3	4048	5744
20	199.8	178.7	3976	6168
21	226.1	176.0	4616	6756
24	316.1	171.4	4832	6000
25	362.0	201.3	5184	4464
26	158.2	204.5	3980	6544
27	36.0	5.5	1500	852
30	188.2	156.3	4940	4864
31	159.7	140.4	4440	5496
40	250.2	156.1	4884	5280
44	112.8	195.3	2848	5800
60	285.3	293.3	4656	5968
61	276.8	184.0	5244	4936
Average	212.69	167.8	4242	5244





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Western Irrigation Agriculture.  
FIELD NOTES.

Huntley (continued).

The following is a summary of the results obtained from the spring and summer pasturing of alfalfa in rotation 67, for 1914.

The average yield of third year alfalfa in rotations 60 and 61 was 5.85 tons per acre. This figure was used in the table. Corn estimated at one cent per pound.

According to the data given in the table, \$17.04 per ton was realized from the hog pasture during the season.

Hog No.	Sex	Pasture period	No. of Days	Initial weight	Final Weight	Gain	Gain for Season	Amount grain used	Net Returns per acre
(Spring pasture, alfalfa)									
1	Gilt	4/27-7/5	71	98	158	60			
2	Barrow	"	71	120	187.5	67.5			
3	Barrow	"	71	120	182	62			
T o t a l				348	527.5	189.5	189.5	612	\$38.08
(Summer pasture, alfalfa)									
1	Barrow	7/7-9/15	70	39.5	76.5	37.0			
2	"	7/7-8/6*	30	54.5	69.0	14.5			
3	"	7/7-9/22	77	42.5	89.0	46.5			
4	"	7/7-9/15	70	36.0	69.0	33.0			
5	"	7/7-9/15	70	30.0	62.5	32.5			
6	"	7/7-9/22	77	38.5	82.0	43.5			
7	Gilt	7/7-9/22	77	42.0	83.0	41.0			
8	"	7/7-9/15	70	38.0	68.5	30.5			
9	"	7/7-9/22	77	43.5	91.0	44.5			
T o t a l				367.5	690.5	323.0	323.0	721	\$61.60
T O T A L							512.5	1333	\$99.68

\* Died from castration.

$\frac{\$99.68}{5.85}$  equals \$17.04 per ton.



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Western Irrigation Agriculture.  
FIELD NOTES.

## Truckee-Carson.

During the week ending October 17, the maximum temperature was 83, minimum temperature 28.

A 6' x 18' cold frame, made of concrete, was completed.

The varieties of carrots, parsnips and cabbages have been dug and put in pits for winter use.

The accompanying table gives results of the 3rd cutting in the "time-of-cutting" experiment. The low moisture content in series V may be accounted for by the frost which occurred on the 9th of September. The cause of high moisture content, plat 2, series IV, is not clear. The results with the first crop are reported in the issue of August 15, and the results of the second cutting in the issue of October 17. The figures given below are the averages of triplicate plats.

Series	Height cm.	% Blooms	Length of basal shoots, cm.	Green wt., grams	Dry wt., grams	Loss wt., grams	% Mois- ture	Date cut
I	58	25	3	1386	379	1007	72.6	8/9
II	61	66	3	1555	427	1128	72.6	8/26
III	61	75	3	1373	325	1049	76.5	9/2
IV	61	100	3	1425	344	1081	76.0	9/9
V	48	Frosted	3	735	227	508	69.2	9/16
VI	52	Frosted	2	972	268	704	72.5	9/23
VII	33	Frosted	3	608	173	435	71.5	9/30

## Belle Fourche.

During the week ending October 24, the maximum temperature was 82, minimum temperature 32, precipitation 1.01 inches.

The work for the week consisted of building turn-outs, repairing irrigation ditches, and laying tile in plat AI-16 where the siphon crosses.





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Western Irrigation Agriculture.  
FIELD NOTES.

## Belle Fourche (continued).

The rain on the 22nd. was a great help to the winter grains, and no fall irrigation was required.

There has been no killing frost to date. Alfalfa and some of the trees are still green.

## San Antonio.

During the week ending October 17, the maximum temperature was 90, minimum temperature 41, and greatest daily range 34. The total precipitation, which came in one shower, was 1.38 inches.

On account of the rain on the 13th, no field work was done until the 14th. All fallow plats in the rotation experiments were harrowed as were all other plowed fields. The plats in the biennial cropping and fallow experiments were disked to kill weeds and loosen the soil. Plowing of field C5 was continued when weather permitted.

Advantage was taken of the unfavorable weather for field work to clean out the lots, shear mules, and clean up around the buildings.

The remainder of the cotton was hauled and ginned. There were two more bales, making a total of four bales now on hand.

The second crop of Sudan grass for seed from field C4 was threshed. It yielded at the rate of 200 lbs. of seed per acre. The yield of hay was at the rate of 1.6 tons per acre.

During the week ending October 24, the maximum temperature was 86, minimum temperature 58, and greatest daily range 16. The entire week was wet, very little field work being possible. The total precipitation was 2.51 inches.

The rainfall in the City was much heavier. The Weather Bureau reports 4.5 inches of rainfall in about four and one-half hours, on the morning of October 23. Floods again threatened the business district, but little damage was done in that



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Western Irrigation Agriculture.  
FIELD NOTES.

## San Antonio (continued).

section. The most serious damage was along the course of Alazian Creek, a tributary of the San Antonio River, where, reports state, about forty houses were washed from their foundation, and many people rendered homeless. The houses which were washed away were cheaply and poorly constructed and were occupied largely by the poorest classes of the City. Reports to date show that seven people were drowned.

About fifteen plats in the rotation experiments were harrowed. Hauling of manure to the field was started, but was stopped on account of rain. The remainder of the week was spent in hauling wood, repairing machinery and buildings, and in miscellaneous work.

## DEMONSTRATIONS ON RECLAMATION PROJECTS.

## FIELD NOTES.

## North Platte.

On the 5th of October Mr. Pickering, of Minatare, reported trouble in his herd of hogs and asked to have them inspected. The probable source of the infection was from a neighboring herd through an irrigation ditch which ran past both hog lots. When the herd was visited, 5 shoats had died, and 12 others appeared to be infected. The herd was vaccinated the following day and all temperatures taken. 90% of the herd high temperatures, ranging from 104 to 108, showing that the disease had spread very rapidly. The first shoat had died 4 days before the trouble was reported. In most all cases of this kind, the trouble is not thought to be cholera until several of the hogs had died and the disease had a good start before the herd is vaccinated. Best results can not be expected in such cases, from vaccination.





31 October, 1914.

Demonstrations on Reclamation Projects.  
FIELD NOTES.

## North Platte (continued).

As a whole the herd was in very good physical condition so it was decided advisable to vaccinate all but a few of the very sickest of the herd, i.e., those showing visible signs of sickness. As the herd was in good physical condition, good results are to be expected even though a greater part of them are affected. Later a report will be made on this herd.

Mr. Pickering is one of the largest and most successful swine growers in the Valley. During the past three years he has shipped \$15,000 worth of hogs, most of which he has raised himself. In 1913 he topped the Denver market four times with four different carloads. His herd are all pure bred Duroc Jerseys. When a sow proves herself a good breeder, she is kept as long as she continues to be a good producer; in this way, and in selecting only good individuals, Mr. Pickering has developed one of the best herds of Durocs in the Valley. It has been found that a good many farmers make a practice of breeding only gilts, let them farrow one litter, and then market the sows with their pigs, and for the next crop of pigs breed gilts again. This practice has greatly reduced the vitality and size of the herds.

On account of having only a limited acreage of alfalfa, Mr. Pickering does not let his hogs run on alfalfa pasture, but cuts the alfalfa and feeds it to the hogs green in a good sized and well drained lot; in this way, considerable more feed is obtained from an acre. The grain ration consists of ground corn and wheat. Considerable sugar beet syrup is fed with good results. Occasionally in hot weather some bad results are experienced from feeding syrup, however. In the winter considerable alfalfa meal is fed, soaked with ground corn and wheat, and this ration is highly recommended by Mr. Pickering.





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Demonstrations on Reclamation Projects.  
FIELD NOTES.

## North Platte (continued).

During the week ending October 10 a visit was made to a herd where 236 hogs were vaccinated on August 8. 60% of this herd was infected at the time of vaccination, judging from high temperatures, so it was thought there would be no reinfection. Only 7 hogs were lost out of this herd immediately following the vaccination with serum alone. When the herd was visited October 7, 2 months after the vaccination, 25 of the hogs were sick with cholera due to reinfection, showing that they did not get the infection during the first outbreak but received the infection after the immunity from the serum alone had run out. A more thorough disinfection of the premises would have prevented this reinfection.

Up to date but very little trouble has been caused by reinfection in herds where cholera has occurred this summer, and only 2 outbreaks have occurred where there was cholera last fall, showing that the farmers have been quite thorough in disinfecting the premises.

Under date of October 20, Mr. Chas. S. Jones submitted the following report concerning his activities in the North Platte Valley:

"During the fall of 1913 several carloads of hogs were shipped into this Valley from the east. Hog cholera broke out in the herd in which these hogs were placed. Up until that time cholera was unknown in this section. Since last fall hog cholera has caused considerable loss among the hogs in some sections of the Valley. In order to prevent a reoccurrence of this promiscuous shipping in of hogs, a quarantine affecting four and one-half counties in this Valley was issued by the Nebraska State Liver Stock Sanitary Board on June 28. This quarantine prohibits the importation of swine into this section except in conformity with certain regulations named in the quarantine, and also prohibits the shipping in and use of hog cholera virus. The simultaneous treatment



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Demonstrations on Reclamation Projects.  
FIELD NOTES.

## North Platte (continued)

of vaccinating hogs is not allowed.

During the week ending October 17 a visit was made to Lincoln for the purpose of considering with the State Live Stock Sanitary Board, and various veterinarians, the advisability of amending the quarantine so as to allow virus to be used. On account of the likelihood of starting new sources of infection in localities where cholera did not exist prior to the treatment, and on account of limited area affected with this disease, it was decided advisable not to allow the use of virus for the present at least. While reinfection has occurred in four herds where they have been treated for cholera this summer, it has been due to a failure of thorough disinfection of the premises after the first outbreak had been checked.

On account of the high price of corn and shortage of grain crops on some of the farms of the Project, a number of the farmers want to dispose of their spring shoats. The average weight is from 80 to 95 pounds. While in Lincoln this week arrangements were made with the State Serum Plant to use several carloads of these shoats at 8 and 9 cents per pound. Western Nebraska shoats are preferred to eastern Nebraska shoats for this purpose on account of their susceptibility to the hog cholera germ.

A herd of shoats previously treated for worms with 5 grains of santolin and 5 grains of calomel was visited during the week and found to be doing well. Prior to the treatment they had been dying, and the owner thought the trouble cholera."

Under date of October 26, Mr. Chas. S. Jones submitted the following report of his work during the week ending October 24:

"A visit was made to the farm of Geo. Boggs, north





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Demonstrations on Reclamation Projects.  
FIELD NOTES.

## North Platte (continued).

of Bayard, on the 12th. His herd was quite generally affected with cholera though the disease appeared first only three days previous to the visit. Those of the herd that showed no visible signs of sickness were vaccinated with serum alone. Thirty-one shoats out of fifty-nine were placed in the quarantine pen without being vaccinated, it being thought that they were too far gone to try to save; the other twenty-eight were vaccinated though a number of them showed a high temperature.

In hog cholera work on the Project this summer and fall, it has been found that it rarely pays to vaccinate a visibly sick hog. If it does become well, it takes a long time and then the affected animal does not amount to much. However, if the animal has a high temperature but shows no signs of sickness the chances are good for saving the hog.

In a herd of 20 shoats recently vaccinated there were a large percent of high temperatures, though only one animal showed signs of sickness. The temperatures ranged from 105 to 108. Out of the 20 only one shoat died, it being the one that appeared sick.

A visit was made to the farm of Mr. Mulligan, located near the western end of the Project. He is one of the largest hog raisers in that part of the Project. At present he has about 800 in his herd. His herd now consists of Poland China and Duroc Jersey hogs, but he expects to have only Durocs in the future. Mr. Mulligan raised 100 acres of corn this year that averaged 40 bus. per acre. During the summer months his herd had access to a splendid alfalfa pasture and were fed an additional ration of about 2% grain. He has just shipped two carloads of hogs that were allowed to hog down a field of corn. He reports very favorably on this method of fattening hogs and gathering his corn crop, and expects to fence all of his corn fields another year, so as to be able to hog down his entire crop of corn. While the cost of fencing a field hog tight is considerable, it can be done at about the same cost of gathering the corn and feeding it to the hogs, and it is believed that



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Demonstrations on Reclamation Projects.  
FIELD NOTES.

## North Platte (continued).

the hogs get more value out of a bushel of corn when allowed to gather it themselves in the field than when it is fed to them in a lot. When the hogs were running in the corn field no noticeable amount of whole corn passed through the hogs, while others that were fed in a lot passed considerable amount of whole corn.

After the older hogs had been fattened, shoats were turned in the same field to gather any corn that had been left by the older hogs. Mr. Mulligan estimates that the corn lost in the field would be practically none.

## NOTICE TO FIELD MEN.

Arrangements have been tentatively made for additional space in the new building across B St. from the West Wing. This space will not be available until early in December at best.

In view of this fact it will probably be desirable for most of the field men to delay coming to Washington until early December, and so far as possible arrange their work so that they may stay in a little later than usual next spring, in order to finish up their field reports.





7 November, 1914.

## WESTERN IRRIGATION AGRICULTURE.

## FIELD NOTES.

Yuma.

During the week ending October 17, the maximum temperature was 99, minimum temperature 48, and greatest daily range 45.

Alfalfa threshing and cotton picking continued.

Sorghum samples were also threshed.

The third cutting of Sudan grass hay from C-25 (method-of-planting test) was harvested.

Cowpeas, soy beans and tepary beans on B-7 and 8, as a green manure crop to precede alfalfa on new land, were plowed under.

Varieties of peas, onions, radishes, lettuce, beets, carrots, turnips, spinach, leek, parsley and parsnip were seeded for winter garden.

Mr. G. P. Rixford spent Sunday, the 18th, at the station making observations of the seedling fig plantings (Smyrna by Adriatic hybrids). Of a total collection of 1636 seedlings, 28%, or 464, have set fruit this season. Of the number setting fruit, 86 are late and have not yet declared their behavior; 26.5% have matured fruit without the presence of the blastophaga for fertilization, and 2.5% are caprifigs. The remaining 52.5% are shedding fruit without maturing for the lack of pollinization.

Mr. G. M. Williams, of the Bureau of Standards, was on the grounds to make the first twelve month examination of the "Cement Tile Alkali Test". Two sections of each mixture were removed and strength test made. The results indicate that alkali present has not yet decreased the strength of any tile. Sections of other mixtures were replaced.

Messrs. Cook, McLachlan, and Blair visited the cotton plantings in Lower Yuma Valley on the 12th.

Messrs. Cook and Gilbert left the station for points in Arizona on the 15th.

The yields of sudan grass in the rate-of-seeding experiment (2nd cutting), method-of-planting test (2nd cutting), seed production test (1st crop) and legume mixture experiment (2nd cutting); also, results obtained with Peruvian alfalfa in the time-of-cutting experiment on the D series (2nd cutting)





7 November, 1914.

Western Irrigation Agriculture.  
FIELD NOTES.

Yuma (continued).

and E series (4th and 5th cuttings), are submitted with the weekly report of October 17.

Scottsbluff.

During the week ending October 24, there was .42 inch precipitation, the largest rainfall since June.

All of the trees in the windbreak have been trimmed. These trees have not been trimmed for three years, since it was thought they would provide a better windbreak if allowed to branch out naturally. Mr. Smith, of the Forest Service, suggested a good trimming, it being his opinion that a more rapid growth would be made, and eventually a better windbreak provided.

During the week ending October 31, the sugar beet harvest on field K was completed.

The corn and stover from field K were hauled in.

One plow team was kept busy at fall plowing and another team hauling manure.

A good curbing was put in on the plat of sod that surrounds the office building. This was found to be necessary as visiting teams usually drove over this sod.

Husking corn, some fencing, and fall plowing are all that remain to be done.

This month practically closes the farm work; after the end of next week only two men will be retained for the winter.

Truckee-Carson.

During the week ending October 24, the maximum temperature was 70, minimum temperature 23.



Western Irrigation Agriculture.  
FIELD NOTES.

Truckee-Carson (continued).

Gypsum was applied to the newly seeded plat lying outside the fence along the road at the northwest corner of the farm, and to the lawn in front of the office.

A part of the sand hill between fields A and C was cleared from brush for the purpose of filling in and raising the level of plats A2, 3 and 4.

Grade stakes were set for a 4-inch tile line extending the length of H-11 to the levee between H8 and 9, then along this levee and the levee between H-19 and 20 to the old tile line between H28 and 29.

Dean C. S. Knight and Prof. Wilson, of the University of Nevada, gave the first of a series of extension lectures at the Smart-Wightman schoolhouse Friday night (October 23rd) and at the Fernley schoolhouse Saturday night (October 24th). Prof. Wilson gave an illustrated talk on Dairying, using the stereopticon belonging to this station.

Plats H-1, 2, 3 and 10 were plowed. These plats are to be seeded next spring to grass mixtures for pasture experiments.

A report of the yields and weights of the ear corn varieties grown under experiment on the farm of Mr. A. R. Merritt is submitted with the report for the week ending October 24.

Belle Fourche.

During the week ending October 31, the maximum temperature was 73, minimum temperature 25.

The alfalfa plats that were crowned in irrigated rotations were plowed and all fall plowed plats double disked. Tile was laid over the siphon on AI-16 and some work was done on the ditches for the tile on the seeped land on AI-1.

Part of the field O that was in oats this year was double disked; also, the part of field P that was in grain varieties.





7 November, 1914.

Western Irrigation Agriculture.  
FIELD NOTES.

Belle Fourche (continued).

The manuring of the garden was completed.  
Mr. Kelso visited the station on the 28th  
and 29th of October.

The corn was husked in the rate-of-seed-  
ing experiment, and the grain and stover weighed  
on October 27. The results of the experiment  
for this season are given in the following ta-  
ble:

Plat No.	Distance thinned (inches)	Yield of grain Bus. per acre		Yield of stover Tons per acre.		Ratio of grain to to stover
		Per plat	Average of three plats	Per plat	Average of three plats	
2	7	33.7		1.5		
12	7	31.9		1.4		
23	7	42.5	36.00	1.7	1.53	1:1.10
4	10	35.0		1.2		
14	10	42.5		1.1		
25	10	40.6	39.36	1.2	1.16	1: .84
6	14	30.6		1.0		
17	14	47.8		1.5		
27	14	45.6	41.33	1.2	1.23	1: .83
8	17	31.5		.8		
19	17	46.7		1.4		
29	17	43.7	40.63	1.2	1.13	1: .78
10	21	30.6		.8		
21	21	41.2		1.2		
31	21	43.1	38.30	1.2	1.06	1: .78
Av. of 16 check plats.. 10			45.00		1.33	1: .82



7 November, 1914.

Western Irrigation Agriculture.  
FIELD NOTES.

## Belle Fourche (continued).

The land on which this experiment was conducted was in oats in 1913, and was plowed and disked in the fall. In the spring of 1914 the land was disked, leveled and harrowed. The seeding was done on June 1. The variety used was Payne's white dent. The seed was drilled very closely in rows three feet and eight inches apart. On June 19 the plants were thinned to the respective distances. There were two rows in each plat and between each two plats there was a check plat of the same size thinned to ten inches. During the summer the corn was cultivated five times, hoed three times, and irrigated three times.

## Huntley.

During the week ending October 24, weather conditions continued favorable for field work.

Beet harvest on the project is nearing completion.

Two teams have been kept at work plowing stubble in fields K, B and M.

Mr. F. D. Farrell and Mr. J. M. Stephens visited the station on the 23rd and 24th of October.

## DEMONSTRATIONS ON RECLAMATION PROJECTS.

## FIELD NOTES.

## Truckee-Carson.

The only herd of all registered Jerseys on the Project is making a very excellent showing in butterfat production on alfalfa hay alone, which is a common method of feeding throughout the Project. Seven animals now on official yearly tests, have excellent chances for qualifying for advanced registry.

Cooperative experimental work has been promised



7 November, 1914.

Demonstrations on Reclamation Projects.  
FIELD NOTES.

## Truckee-Carson (continued)

by one dairyman, for the purpose of determining the profitableness of supplementing the alfalfa hay with grain under prevailing prices on the Project. Four cows will be used in this experiment. Two of the animals will be put on the hay alone, and two on hay supplemented with grain. The first part of the experiment will cover three weeks, then the plan of feeding will be reversed. The "all hay" lot will be changed to the hay and grain, and vice versa. One week's interval will be allowed for the change before the second set of records will be taken. The animals will be fed just the same as when the first records were taken. The experiment will then run three weeks as before. Careful records of the cost of milk and butter-fat, as well as the amounts of each will be kept in each case. It is not possible to continue such cooperative experimental work over as long a period as it should be, because of its interference with regular duties of the farm work.

It is hoped that all such work will be repeated from time to time by different farmers so that the data may be more reliable.

## Minidoka.

Owing to numerous requests from men with whom work had formerly been done, a number of these men were visited and their problems discussed.

The following dairies will keep cooperative records:

Stoddard Dairy, Burley, Idaho :-Jerseys.

Clover Lea Dairy, Burley, Idaho :-Holsteins.

C. E. B. Roberts Dairy, Rupert, Idaho:-  
Jerseys.

These men have been selected with care, as it is believed to be best to select men who will carry on the work carefully and not drop it in a month or two. While blanks will be furnished to a number





7 November, 1914.

Demonstrations on Reclamation Projects.  
FIELD NOTES.

## Minidoka (continued).

of men and tests made for them, the above named men will check up cost of production, profits, etc. closely.

The survey cards of the hog cholera control work give the following data:

No. of farms reported.....	1036
No. of hogs in 1912.....	8747
No. of hogs in 1913.....	16889
No. of hogs in 1914.....	27050

No. of cases of cholera... 1 (Oct, 1914).

The entire week ending October 19, 1914, was devoted to a study of the problems of the Project.

So far as can be learned, the live stock is remarkably free from disease. Only one case of hog cholera has ever been reported, and this was promptly cared for and the disease has not spread. All neighbors have been warned of the danger and the infected premises thoroughly disinfected.

Contagious abortion which is prevalent in some sections of the State does not seem to be present on the Project.

The harvesting of sugar beets and potatoes continues. The price of potatoes has dropped to 40¢ per cwt (sacked). Many of the potatoes are affected with scab.

Thousands of tons of alfalfa hay are in the stack. While much of this is offered for sale, there is no definite market. In the past, five dollars per ton has been the common price although this fall some has been sold for four. Most of it, however, is being held for five dollars.

Most of the hay is stacked in one stack, the second cutting on top of the first, and the third on top of the second; each stack has a large proportion of weather-beaten and discolored hay scattered through it. When baled this appears in streaks in almost every bale. Most of the hay is made from over-ripe alfalfa. This is due part-



7 November, 1914.

Demonstrations on Reclamation Projects.  
FIELD NOTES.

Minidoka (continued).

ly to the desire to obtain tonnage rather than quality, and partly to the advice of the old settlers. For this reason it is doubtful whether it would be advisable to recommend this method to sections of the East and Middle West.





21 November, 1914.

## WESTERN IRRIGATION AGRICULTURE.

## FIELD NOTES.

Yuma.

During the week ending October 24, the maximum temperature was 93, minimum temperature 44, and greatest daily range 40.

Thirty-four acres were irrigated.

The first picking of cotton was made on D11-13.

C6-7-24 and D14 were plowed.

The third cutting of sudan grass was harvested on C25.

July planting of broom corn on D6 was harvested.

Two outside teams were hired for three and one-half days to level B6 in order to prepare ground to complete a green manure test preceding alfalfa seeding.

B6 will be planted as a raw land check.

Pecan nursery on F1 was disced and hoed of Bermuda grass.

Orchard stakes were set in the deciduous orchard.

Four varieties of eighteen sorts of vegetables were added to the winter garden planting.

Season's fruiting notes on a total of 450 seedling pomegranates showed 238 producing good fruit, 67 fair fruit, and 135 are not bearing. Of the entire lot 208 are affected with the prevalent pomegranate disease.

Mr. T. H. Kearney visited the station early in the week.

During the week ending October 31, the maximum temperature was 89, minimum temperature 51, and greatest daily range 37. One-fifth of an inch of rain fell in drizzling showers on the 30th, checking field work for two days during which time the farm machinery was repaired.

The large tank for storage of water for propagation was partly prepared on tower for erecting; also,



21 November, 1914.

Western Irrigation Agriculture.  
FIELD NOTES.

## Yuma (continued).

seed storage houses were removed to a new location.

Dates and eucalypts along roads, figs on C series, and several farm ditches were hoed.

All seed yields are very light, as they have been on all of the local farms this season.

A preliminary report of the alfalfa seed yields for the season 1914 was submitted with this report.

## Belle Fourche.

During the week ending November 7, the maximum temperature was 67, minimum temperature 21.

Corn in field O was husked.

The drain for tile on AI-1 was dug, and the irrigation ditches repaired.

The water was turned into the north canal on the 6th, and some irrigation will be done the following week on alfalfa, trees, and the fall irrigation experiment.

During the week ending November 14, the maximum temperature was 65, minimum temperature 19.

Series II-6 to 13, and Series V-5 to 13, Field P, and alfalfa in Fields O and P were irrigated.

The rest of Field O between alfalfa and the pond was broken and irrigated.

The balance of the week was put in repairing irrigation ditches and filling in the tile drain on AI-1.

The farm work is practically completed.

## Truckee-Carson.

During the week ending October 7, the maximum temperature was 75, minimum temperature 23.

The work of raising the level of plats A2, 3 and 4, and fencing the newly leveled area at the northwest corner of the farm was continued throughout the week.





21 November, 1914.

Western Irrigation Agriculture.  
FIELD NOTES.

## Scottsbluff

All of the week ending November 14 was put in shucking corn and hauling lumber.

One team finished the plowing on field K.

During spare time the work on the dike along the north line of the farm was continued. One of these dikes gave considerable trouble last year as it was not large enough to carry the water. The dike along the northeast end of the farm will also require a going over. It is hoped to cement the inside of this dike since the gophers have damaged it considerably, coming from the land above and causing the water to break through several times.

## DEMONSTRATIONS ON RECLAMATION PROJECTS.

## FIELD NOTES.

## Truckee-Carson.

Under date of November 11, Mr. Cline reports that the farmers of the Truckee-Carson Project are having considerable trouble in getting their dairy cows to breed for an unreasonably long time after calving, and a great many cows have been given up as permanently sterile and disposed of. Some of this trouble can be accounted for by the presence of contagious abortion, but where much of the trouble exists there have been no apparent signs of abortion, the last calves in all cases having been delivered normally. This trouble has become so general throughout the Project that it promises to become a discouraging factor in the development of the dairy industry here, if there is no relief.

All dairy cattle in this locality are fed on a straight alfalfa hay ration throughout the year, the cattle being confined in corrals.





21 November, 1914.

Demonstrations on Reclamation Projects.  
FIELD NOTES.

## Truckee-Carson (continued).

Inquiries have been sent out to the various Experiment Stations of the western states where the dairy cattle are fed largely on alfalfa hay and otherwise handled in a manner similar to the method in use here, to find out if the feed and method of handling can in any way be responsible for the difficulty. It is hoped also to get some suggestions for a remedy for the difficulty through correspondence.

## Minidoka

Under date of November 9, Mr. Rinehart reports that the surveys of school districts Nos. 6, 8 and 13 were completed during the week. These districts lie in the northwest corner of the Project, and as a rule the farms are not well equipped.

The production of hay and grain is by far the leading industry. Most of the grain has been sold and shipped. The hay has been mostly sold to the range sheepmen, who will winter their breeding herds on the farms. The hay sold for from \$5.00 to \$5.50 per ton. There is considerable hay that has not been sold, however.

In the live stock lines swine production is by far the most popular. Grade herds of Durocs, Chester Whites, Poland Chinas, Berkshires and Hampshires were found. A few good pure bred boars are being used but not many. Lice seems to be the greatest trouble at present, and more inquiries were received concerning this trouble than any other.

While most farmers keep from one to six cows for dairy purposes, these are mostly "scrub stock". As a rule butter is made on the farm, though a few farmers ship cream. A few are contemplating dairying on rather an extensive scale, and two men in District 12 were found to be so interested in the silo

1900

I have been thinking of you a great deal lately, and wondering how you are getting on. I hope you are well and happy. I have been very busy lately, but I have managed to find some time to write to you. I have been thinking of you a great deal lately, and wondering how you are getting on. I hope you are well and happy. I have been very busy lately, but I have managed to find some time to write to you.

1. The first of these is the fact that the  
 2. the second is the fact that the  
 3. the third is the fact that the  
 4. the fourth is the fact that the  
 5. the fifth is the fact that the  
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 9. the ninth is the fact that the  
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21 November, 1914.

Demonstrations on Reclamation Projects.  
FIELD NOTES.

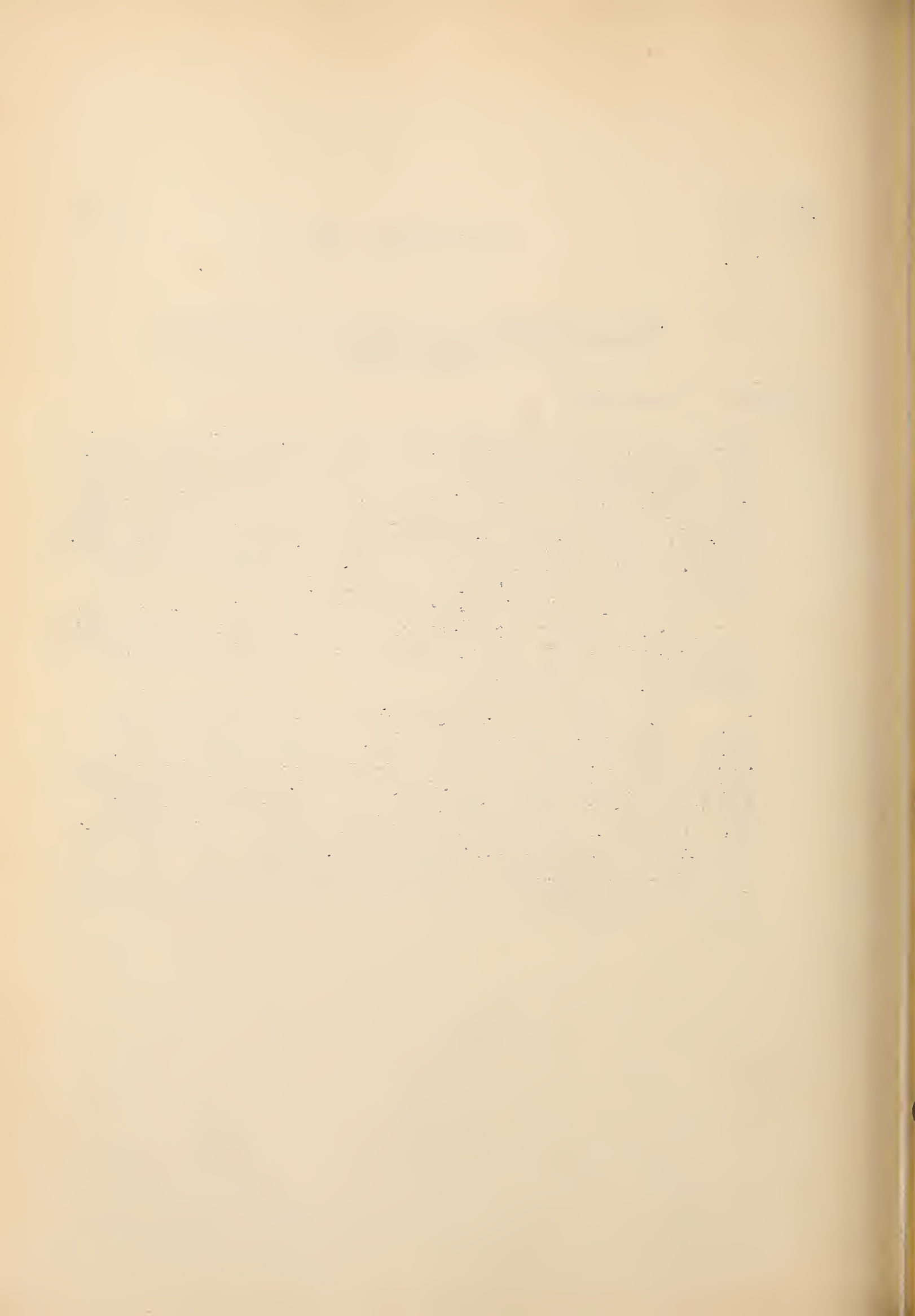
Minidoka (continued).

that they will be furnished with selected seed corn for experimental purposes. Three fairly good grade Holstein bulls and one good registered Holstein bull are being used. The cattle are of all kinds- grade Jerseys, Holsteins, Shorthorns, Herefords- many being range cattle kept for milk. The Holstein is the most popular with the shorthorn second. There is one good beef herd of 40 grade Herefords.

A few herds of sheep are kept on the farms, the ewes being mixed range stock but the bucks are of some registered breed, in three cases, registered stock.- Hampshires or Lincolns.

While many of the horses are of the "cayuse" type, some very good colts are being raised. One good registered Percheron herd, consisting of 8 mares and a stallion, the individuals all being very good and comparing favorably with any in the northwest, is kept in District 12, by Mr. E. S. Harden, who owns the registered Holstein bull. He will also start a pure bred Poland China herd.

Six men were put in touch with breeders of good herds of pure bred swine.





28 November, 1914.

## WESTERN IRRIGATION AGRICULTURE.

## FIELD NOTES.

## Huntley

On the 16th of November the first severe freezing weather of the season occurred, the minimum temperature being -3.

During the latter part of the week ending November 21, two teams were worked in the construction of a waste ditch from field A.

The height of ground water in the wells on the Worden tract on November 16 were as follows:

<u>Well No.</u>	<u>Depth to water, feet</u>	<u>Difference since November 2</u>
A-1	3.10	.21 fall
-2	3.43	.34 "
-3	3.16	.26 "
B-1	3.58	.17 "
-2	3.69	.12 "

Experiment in Controlling the Sugar Beet Root Louse.

In cooperation with the Biology Department of the Montana State Station, an experiment has been conducted to determine means of controlling the sugar beet root louse, Pemphigus betae. In nearly all parts of this section growing beets for the local beet sugar factory the crop is damaged to some extent by invasions of this pest. Mr. J. H. Scilly, Agriculturist for the Billings Sugar Company, estimates that in cases of very bad infestation the crop may be reduced by as much as one-fourth to one-third. The root louse lives over the winter on cottonwood trees and migrates to the beet fields in the latter part of June and early July, and may also live over winter in the ground.

In ordinary treatment sugar beets are not irrigated until the latter part of July and it was the plan of the experiment as outlined by Mr. Parker, of the Biology Department, to keep the ground thoroughly irrigated and cultivated during the migration period and from then on to the end



WESTERN IRRIGATION AGRICULTURE.  
Field Notes.

Huntley (continued).

of the season with the idea of preventing the lice from entering the soil. As a check another plat was allowed to become quite dry early in the season and again during the middle of August. The plats were one-tenth acre in size and were run in triplicate and were on ground that was fallow in 1913 and in alfalfa in 1912.

The wet plats were irrigated five times; on July 3, 10, 18, 30 and August 24, and were cultivated five times. The dry plats were given two irrigations on July 22 and August 20, and were cultivated two times. At the time of harvest each beet was examined and note made of the number of lice on each beet. The yields and other data are given in the following table:

Plat No.	Stand per acre	% Plants infested	% injuriously infested	Yield		Weight per beet ounces	Sugar content %
				plat lbs.	acre tons		
CIV-1	24860	20.7	4.2	2581	12.90	16.6	17.2
-2	23320	56.8	6.0	2180	10.90	14.9	----
-3	24750	25.5	5.5	3270	16.36	21.1	16.3
-4	26520	69.0	7.0	2624	13.12	16.5	14.8
-5	25500	45.8	3.1	3131	15.65	19.6	15.7
-6	28720	64.1	8.0	2601	13.00	14.5	----
Av. 1-3-							
5-(wet)	25036	30.7	4.3	2994	14.97	19.1	16.4
Av. 2-4-							
6-(dry)	26186	63.3	7.0	2468	12.34	15.3	----

The samples sent in for sugar analysis from plats 2 and 6 were lost or destroyed in shipment.

Similar tests were made at Bozeman and at the Billings Sugar Company ranch at Edgar. The results from these places





28 November, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes.

Huntley (continued)

are given in the following table:

are given in the following table.							
Plat No.	Stand per acre	% plants infested	% injuriously infested	Yield		Weight per beet ounces	Sugar content %
				plat lbs.	acre tons		
<u>Edgar</u>							
Av. wet (2 plats	35,773	68.2	9.9		7.86	7.0	16.5
Av. dry 2 plats	34,399	92.1	30.2		6.12	5.6	16.1
<u>Bozeman</u>							
Av. wet 2 plats	18,896	9.2	---	4340	8.68	14.7	
Av. dry 2 plats	12852	46.8	---	3255	6.51	16.3	

It is shown that the percent of plants infested was much less in all cases where the soil was kept moist at all times by frequent irrigation and that the yield is higher in each case on the wet plats.

Truckee-Carson.

During the week ending November 14, the maximum temperature was 68, minimum temperature 19.

All the alfalfa plats on fields F and H were given a final fall irrigation. This is the first year the Reclamation Service has provided water so late in the season for general irrigation. The water was turned out of the canals on October 15, and was again turned in during the week ending November 14, to give those who desired to take advantage of it, an opportunity to give alfalfa and other crops a fall irrigation.

The ground outside the lateral at the northwest corner of the farm has been fenced, and arrangements have been made with the Reclamation Service whereby the experiment farm may fence in the canal along the west side of the farm. This will





28 November, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes.

## Truckee-Carson (continued).

provide several acres of pasture suitable for sheep, and will greatly improve the appearance of the farm along the west side as the growth of grass, weeds and willows along the canal bank has always been unsightly.

## Scottsbluff.

On November 16 the thermometer registered 3 above zero; this has been the coldest weather so far this season. There has been no snow and practically no rain since August.

The week ending November 21 was put in doing chores, husking corn and cleaning up about the farm. Some work was done on the ice house, and some changes made in the hog house and hog yards.

Farmers are beginning to haul the silo beets. This is being done this year about three weeks earlier than it was done last year. This is due to the fact that the factory shipped all of the beets grown on the south side of the river to Sterling, Colo.

The beet growers of the Valley have organized an association, the object of which is to ask for more pay for the beets grown.

Shipment of lambs and sheep to the Omaha and St. Joseph market are becoming more frequent. On account of the good condition in which the lambs and sheep came in this fall they are feeding out more rapidly than in the past. One feeder reported a car of lambs shipped out November 14 that was on feed little over three weeks cost \$5.60 made a little better than 20 pounds gain at Omaha, and sold for \$7.80. Should prices hold up on lambs and the good weather continue, the feeders believe that many of the yards will be emptied by Christmas.



28 November, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes.

## San Antonio.

During the week ending November 14, the maximum temperature was 80, minimum temperature 39, and greatest daily range 41. The total precipitation was .93 inch.

The weather during the past two weeks has been wet and unfavorable for field work the greater part of the time.

During the two weeks practically all of the fallow plats and fields were harrowed or disked. Plats A4-2, B5-3 and B5-4 were plowed. Canada field peas were planted on six rotation plats on November 6, and winter oats were planted on the rotation plats on November 7.

Five quarter-acre plats of winter oats were seeded on D3 on November 10. These will be used in a pasturing experiment similar to the experiment carried on last season.

Some time was spent in repairing buildings and in miscellaneous work.

Mr. Hastings returned to the station on November 9 after several weeks spent in Washington.

## Huntley.

Most of the week ending November 14 was spent in completing the fall plowing, and husking corn in the orchard.

Irrigated Rotations.

On September 22, four duroc-jersey hogs were transferred from the alfalfa to the corn plat of the same rotation. They remained on this plat twenty-two days. The estimated yield was 50.42 bushels.

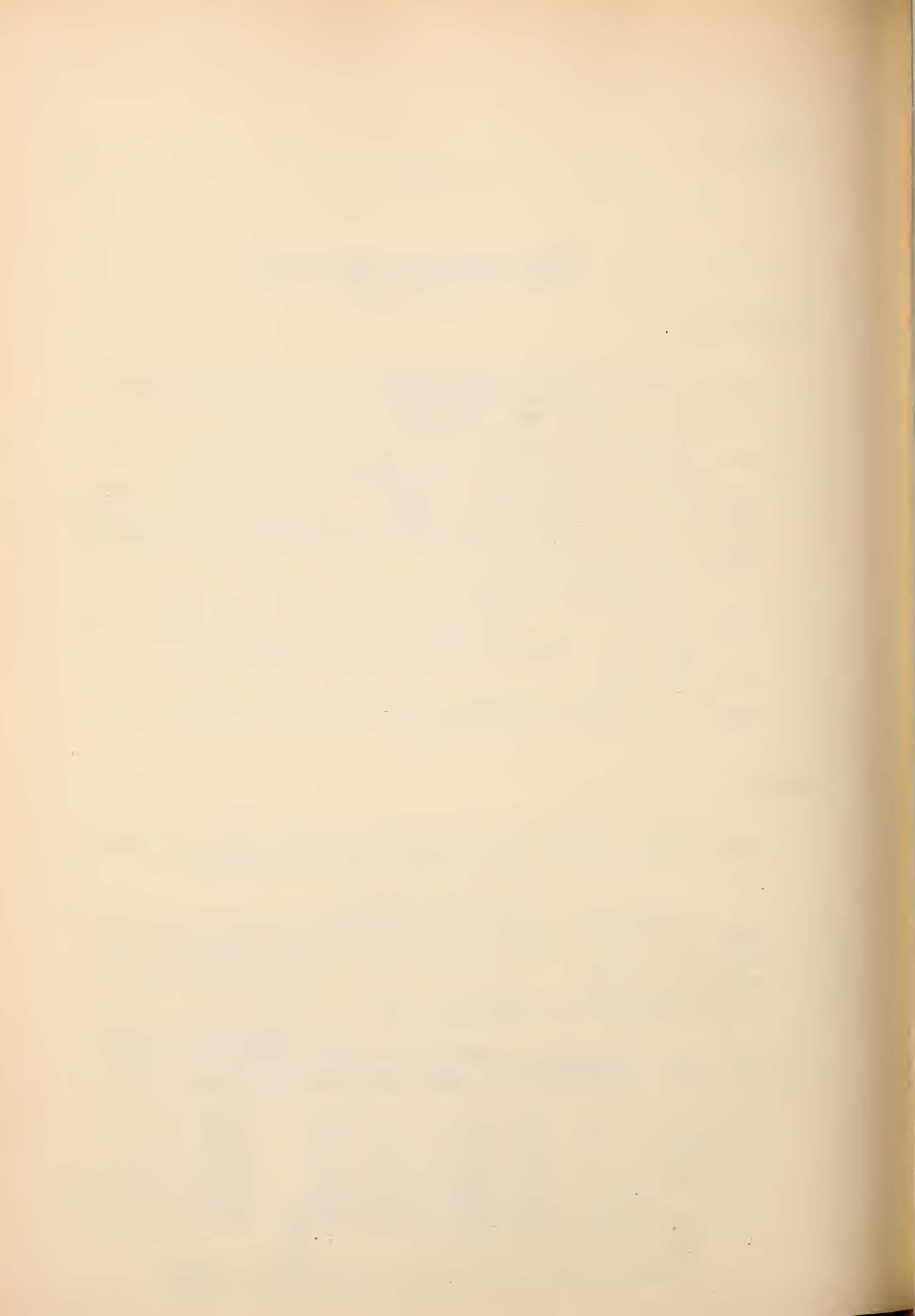
The results are tabulated below:

No.	Sex	Weight		Total gain	Daily gain	%	Lbs. pork per acre per day	Amount *grain fed
		Initial	Final					
1	Male	89	145.5	56.5	2.57	2.25	10.28	12.6
2	Male	82	139.0	57.0	2.59	2.43	10.36	bus.
3	Female	83	137.5	54.5	2.48	2.30	9.92	or
4	Female	91	147.0	56.0	2.54	2.20	10.16	705.6 lbs.
		345	569.0	224	10.18	2.36	40.72	

Daily returns per acre..... 2.85

Lbs. grain per lb. of pork..... 3.94

\* Shelled corn. ----- Value of corn per bu. \$1.24





28 November, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes.

Huntley (continued)

The following is a summary of the data obtained from corn in the irrigated rotations for the season of 1914, including comparative tables for 1913 and 1914.

Rot. No.	Plat No.	Preceding crop	Per plat		Bushels per acre	Stand plants per A.	Height	Lbs. of stover to 1 lb corn
			Pounds Stover	Pounds Corn				
67	K-II-2	Alfalfa	Hogged	--	--	7540	7'0"	.93
26	K-V-16	Potatoes	890	964.0	55.08	6684	7'0"	.93
32	K-IV-19	Beets	702	761.6	43.52	6272	6'6"	.92
16	K-V-1	Oats	784	724.16	41.38	7612	6'6"	1.08
6	K-IV-23	Corn cc	600	553.5	31.63	6047	6'0"	.92
	Average		744	750.81	42.90	6654	6'6"	.96

Average does not include plat K-II-2.

Comparative yields and stands,  
Corn 1913-1914.

Rot. No.	Yield per acre		Stands: plants per acre	
	1913	1914	1913	1914
6cc	36.70	31.63	7256	6047
16	33.90	41.38	7088	7612
26	48.50	55.08	7592	6684
32	48.70	43.52	7372	6272

The corn yields were estimated in accordance with the method suggested in the Bulletin for January 17, 1914.

In order to test the reliability or accuracy of this method estimates were taken on several of the corn plats in the various irrigated rotations in addition to the plat that was hogged. The additional plats chosen were in rotations 16, 26 and 32.

On September 14 the product of one hundred stalks were gathered from each of the four plats. The stalks were selected systematically as suggested in the Bulletin, according to the stand



28 November, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes.

Huntley (continued)

count of the respective plats, for example, rotation 32 had a stand count of 1500; therefore, the product of stalks 15, 30, 45 and so on were gathered. Ten such stalks comprised a 10-stalk unit, ten 10-stalk units a plat. The 10-stalk units were weighed separately and placed in individual sacks where they remained until thoroughly dried and the dry weight obtained. The average weight per 10-stalk unit divided by ten gave the yield per stalk. This figure multiplied by the stand count gave the estimated yield.

An equivalent of the amount removed in making this estimate was returned to the plat that was hogged.

The table below contains the results of the above work:

Rotation No.	Actual Yield	Estimated Yield
67		50.42
32	43.52	41.78
26	55.08	51.91
16	41.38	44.58
Av. (32,26,16).....	46.66	46.09

The estimated yields were found to be 1.2 percent lower than the actual yields.

Alfalfa yields in the Irrigated  
Rotations. 1914.

Rot. No.	Plat No.	Tons per acre.			Total	Age, years
		1st.	2nd.	3rd.		
67	K-II-5	.56	1.50		2.06	1
67	-6	1.71	1.91	1.62	5.24	2
61	K-III-1	1.05	1.54		2.59	1
61	-5	1.74	1.96	1.83	5.53	2
61	-6	2.18	1.67	2.13	5.98	3
60	-7	.72	1.73		2.45	1
66	-11	1.90	1.57	1.78	5.25	2
60	-12	2.10	1.83	1.79	5.72	3
44	K-IV-13	.39	1.08		1.47	1
44	-14	1.99	.95	1.52	4.46	2
42	-9	.70	1.70		2.40	1

(continued).



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WESTERN IRRIGATION AGRICULTURE  
Field Notes.

Huntley (continued).

Rot. No.	Plat No.	Tons per acre			Total	Age, years
		1st.	2nd.	3rd.		
42	K-IV-10	2.06	2.23	1.97	6.26	2
40	-3	.56	1.77		2.33	1
40	-4	2.00	1.84	1.81	5.65	2
8cc	-22	1.85	1.26	1.51	4.62	3

	Maximum		Minimum		Average	
	1913	1914	1913	1914	1913	1914
First year	2.51	2.59	1.79	1.47	2.20	2.21
Second year	6.29	6.26	4.51	4.46	5.68	5.41

DEMONSTRATIONS ON RECLAMATION PROJECTS

FIELD NOTES.

Truckee-Carson.

The following is a brief survey of the principal lines of work that have so far been taken up by Mr. Cline.

Contageous Abortion Control.

Milking machine (Cooperative experimental work).

Object (a). Economy of time.

" (b). Efficiency as compared with hand milking.

Feeding methods (cooperative experimental work).

Object (a). Pounds of alfalfa hay required to produce one pound butterfat.

" (b) Pounds alfalfa hay required to produce 100 pounds milk.

" (c) Is supplementing alfalfa hay with grain under local conditions profitable?-





DEMONSTRATIONS ON RECLAMATION PROJECTS

Field Notes.

Sterility of dairy cattle.

Cooperation in selling the turkeys of the Project.

Survey of live stock and hog situation on the Project.

Cooperation in selling the 1914 alfalfa hay crop of the Project.

(a) Freight rates to Kansas City and Omaha reduced one-half, to go into effect January 1, 1915. Rate to be ten dollars per ton to these points.

Hog cholera control. All cases of trouble visited; post mortems made; work done in cooperation with State live stock sanitary board.

Dairy herd testing.

Methods of hog feeding for the Project.

Comparative ability of Holsteins and Jerseys to use a straight alfalfa hay ration (Cooperative experimental work).

Dairy association organization of all dairymen on the Project.

Addresses to local community organizations.

Treating minor ailments of animals.

Keeping under control contagious abortion.



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## WESTERN IRRIGATION AGRICULTURE.

## FIELD NOTES.

Scottsbluff

The week ending November 29 was devoted to the construction of fences, building, and odd jobs about the farm.

Results of corn-hogging work-1914.

	Corn and tankage		Corn and alfalfa		Corn only		
	Lot 3	Lot 4	Lot 1	Lot 6	Lot 2	Lot 5	Rot. 65
Days on feed	77	77	77	77	77	77	49
No. of hogs	3	3	3	3	3	3	6
Initial wt., lbs.	264	270	273	268	267	268	380
Final wt., lbs.	723	706	645	660	537	608	642
Gains made	459	436	372	392	270	340	262
Value of gains at \$7.00	\$32.13	\$32.52	\$26.04	\$27.44	\$18.90	\$23.80	18.34
Hogged corn, bus. (estimated)	18.8	21.4	26.6	22.3	19.7	23.4	20.5
Corn added, bus.	10.4	6.9	0.4	7	3.5	3.6	--
Total corn, bus.	29.2	28.3	27.0	29.3	23.2	27.0	20.5
Tankage fed, lbs.	150	150	--	--	--	--	--
Cost of tankage	\$4.80	\$4.80	--	--	--	--	--
Net returns for bu. corn	\$ .93	\$ .91	\$ .96*	\$ .94	\$ .81	\$ .88	\$ .89
# Lbs. pork per bu.	15.7	15.4	13.7	13.4	11.6	12.6	12.7

\* No credit is here given the alfalfa pasture.

# No credit is here given the supplementary feed.

The following table shows the effects of manure and the residual effect of alfalfa on the yield of beets from the irrigated rotation experiments.

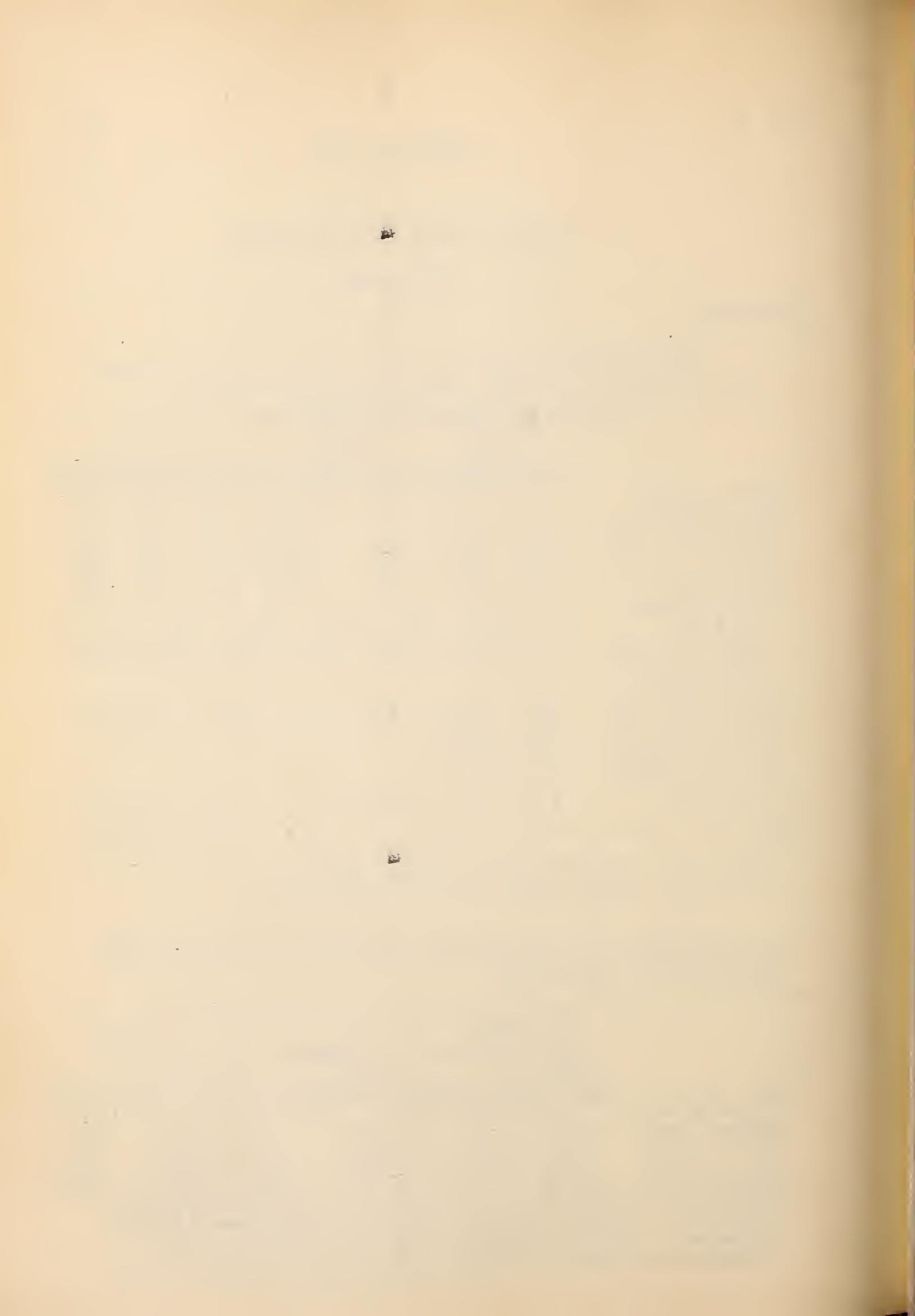
	No manure or alfalfa		Manure		Alfalfa	
	Tons per acre	% sugar	Tons per acre	% sugar	Tons per acre	% sugar
No. of plats	8		4		2	
Highest yield	16.57	19.0	19.87	19.5	21.17	17.8
Lowest yield	13.35	15.9	17.24	17.4	20.67	17.0
Average yield	14.54	17.2	18.26	18.2	20.92	17.4

Difference in yield of manured plats over non-manured 3.72 -

Difference in returns of manured plats over non-manured \$18.60

Difference in yield of alfalfa plats over non-manured 6.38

Difference in returns of alfalfa plats over non-manured \$31.90





5 December, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes

Scottsbluff (continued).

The yields of beets in the irrigation rotation experiments were as follows:

Plat No.	Rot. No.	Yield, tons per acre	% Sugar	Preceding crop	
				1913	1912
K-I-13	23	19.87	17.5	Cats-manure	Beets
-17	21	17.24	18.5	Potatoes	Beets-manure
K-II-3	31	17.44	17.4	Oats-manure	Potatoes
-6	61	18.49	19.5	Oats-manure	Potatoes
-15	40	21.17	17.0	Potatoes	Alfalfa
-17	20	14.50	18.2	Potatoes	Beets
-18	2	13.35	16.7	Beets	Beets cc
K-III-2	18	16.57	18.2	Wheat	Beets
-3	30	13.94	16.2	Oats	Potatoes
-6	60	14.78	16.5	Oats	Potatoes
-15	42	20.67	17.8	Oats	Alfalfa
-17	22	14.20	19.0	Oats	Beets
K-IV-3	32	14.62	15.9	Oats	Corn
-6	62	14.33	16.9	Oats	Corn

## Truckee-Carson.

During the week ending November 21, the maximum temperature was 54, minimum temperature 10.

The work of leveling the low, alkali land west and southwest of the office and laboratory was completed. A tile drain will be laid through this land to empty into "C" drain. The work of laying tile in Field H was continued throughout the week.

Mr. F. D. Farrell and Professors C. S. Knight and F. W. Wilson, of the University of Nevada, were visitors at the farm during the week.

The results of the potato variety test conducted on the



WESTERN IRRIGATION AGRICULTURE.  
Field Notes

## Truckee-Carson (continued)

A. R. Merritt are given below:

VARIETY	Length of row	Gross yield	Gross yield per 100 ft. row	Yield, Mar- ketable potatoes	Yield, marketable potatoes per 100 ft. row
Burbank, whole	585	722	123		
1/2 cut	585	654	112		
1/4 cut	585	566	97		
Earliest of All	207	168	81	126	61
Early Rose	135	87	64	42	32
Rusty Coat	225	134	60	76	34
Seneca Beauty	234	133	57	110	47
Early Freeman	195	106	54	79	41
Hundred Fold	153	79	50	62	40
Pride of Multnomah	228	105	46	70	31
Burbank	657	278	42	198	30
Early White Prizetaker	255	91	36	73	29
White Beauty	483	176	36	106	22
Colorado Pearl	495	171	35	132	27
Irish Cobbler	150	49	33	38	25
Extra Early Ohio	126	41	33	22	17
Rural New Yorker	234	70	30	50	21
New White Victor	156	45	29	33	21
Extra Early Triumph	159	38	24	22	14
Red Ohio	267	62	23	41	15
Early Ohio	327	60	18	26	8
Livingston	120	20	17	17	14
New Snow	177	26	15	19	11
Early Triumph	396	35	9	16	4
Great Divide & Banner (mixture)	477	186	39	138	29

Time of Cutting Alfalfa in Relation to Growth Efficiency.

Under the above caption a note was published in the Weekly Bulletin of the issue of December 6, 1913, in which attention was





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WESTERN IRRIGATION AGRICULTURE.  
Field Notes

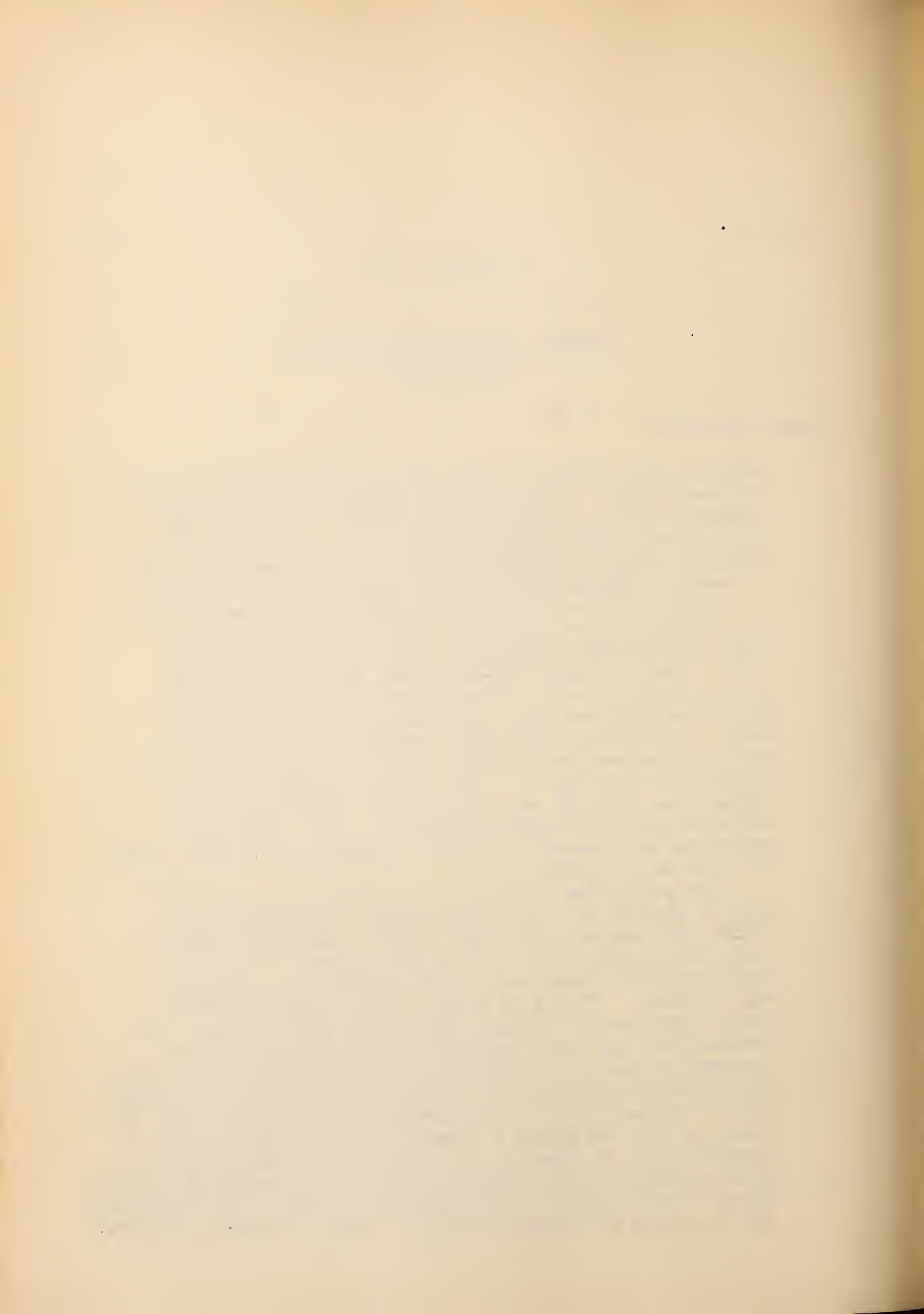
## Yuma (continued)

called to the results of experiments made at Huntley and at Truckee-Carson. It was further suggested that the work be repeated at Yuma during the next season. This has been done, and while the season's results are not yet available because the final cuttings have not yet been made, the data in hand are significant enough to warrant further comment.

There were two distinct experiments conducted at Yuma. In the first there were three one-acre plats of alfalfa, which were planted in February, 1913, on field E, plats 1 to 6. Each of these one-acre plats was subdivided into four by longitudinal borders and one of each of the four was cut at the same time, thus making a triplicate experiment. The first three plats were cut on April 18, the second three were cut April 25, the third three May 2, and the fourth three May 9. The second cutting of the first three plats was made May 19, and each of the other sets after a lapse of a week's interval. Thus, the growth period for the second and latter cuttings was the same length for each set of plats.

The particular question to be answered by this experiment is whether or not a longer growth period for an alfalfa crop results in a larger crop in the second cutting where the growing period is the same length. The experiments at Huntley last year showed conclusively that this was the case. They also showed that the longer growing period resulted in a larger crop at the first cutting. The results from the Yuma experiment do not show any material increase in the first cutting as a result of the longer growing period but in the second cutting the effect is very marked. That is to say, that a longer growing period for one crop appears to give the plants a reserve of energy that is shown in greater vigor of growth in the second crop, even though the growing period of the second crop is the same length for all the plats. Following is a table giving the yields from these plats for the first and second cuttings. The full report of the ex-





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WESTERN IRRIGATION AGRICULTURE.  
Field Notes

Yuma (continued).

periments will be published later:

Plat	1st crop		2nd crop	
	Date cut	Yield	Date cut	Yield
1	4-18	.597	5/19	.63
5	"	.429	"	.50
9	"	.758	"	.57
2	4-25	.827	5/27	.97
6	"	.755	"	.73
10	"	.715	"	.80
3	5-2	.45	6/2	.71
7	"	.511	"	.80
9	"	.729	"	.78
4	5-9	.683	6/11	1.80
8	"	.801	"	1.30
12	"	.839	"	1.59

These yields, which are reported in tons per acre of thoroughly air dry hay, show a consistent increase in the yield of the second crop. If we express in the form of a ratio the mean yield of the first crop and the mean yield of the second crop, taking the mean yield of the first crop as unity, we get the following:-

Plats 1, 5, 9 --- 1: .96      Plats 2, 6, 10 --- 1: 1.08  
Plats 3, 7, 11 --- 1: 1.35      Plats 4, 8, 12 --- 1: 2.01

If we accept these figures at their face value it would seem certain that the longer growing period for the first crop gives an increase in growth efficiency for the second crop that is significant. There is one point, however, that should be kept in mind. While the length of the growing period was the same in all cases it should be remembered that the season was further advanced when the last set was cut than when the first set was cut. That is, the growth period of the second



5 December, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes

Yuma (continued).

cutting of plats 1, 5, 9, was from April 18 to May 19, while the growth period of the second cutting of plats 4, 8, 12, was from May 9 to June 11, when it seems safe to assume that the conditions favored more rapid growth. It is uncertain just how important this factor is. When the final results of the season are in it should be possible to determine whether or not a delay of cutting the first crop in the spring is a practice that is to be recommended. The mean of the total yields at the end of the sixth cutting show a slight but hardly significant advantage in favor of delaying the first cutting.

The second experiment in time-of-cutting alfalfa on the Yuma farm was conducted on plats D-18, 20 to 26. These plats are each a half-acre in size, and were seeded in March, 1914. The first growth of alfalfa on all these plats was clipped on May 29. The crop from this first clipping was rather weedy, and the weights, though recorded, are not included in the experiment.

There are eight one-half acre plats included in this experiment, with four different cuttings, so that the results are duplicated. The stand and rate of growth are fairly uniform. The Peruvian variety was used.

The following table shows the yields from the first and second cuttings on these "D" plats in tons per acre of air dry hay:

Plat No.	1st Crop			2nd Crop			Ratio
	Date cut	Yield	Mean	Date cut	Yield	Mean	
18	7/10	.68	.80	8/14	.21	.46	1: .57
23	"	.93		"	.71		
20	7/17	.64	.67	8/21	.63	.68	1:1.01
24	"	.70		"	.73		
21	7/23	.86	.90	8/28	.78	.92	1:1.01
25	"	.95		"	1.07		
22	8/3	1.25	1.34	9/4	.66	.71	1: .53
26	"	1.43		"	.77		





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## WESTERN IRRIGATION AGRICULTURE.

Field Notes

Yuma (continued).

While these results do not confirm those of the first experiment nor those obtained from Huntley last year, it should be kept in mind that they are not directly comparable. Probably the chief difference lies in the fact that the growing season of the second crop came at a less favorable season on the 22-26 plats than on the earlier ones. It has been noted that for some reason alfalfa makes very little growth at Yuma during late August and early September. This fact is shown by a comparison of the second crop yields from the 22-26 plats with the third crop yields from the 18-23 and 20-24 plats, where the conditions of the growing period were fairly comparable.

Second crop... 22-26, mean .71

Third crop... 18-23, mean .45

Third crop... 20-24, mean .48

The growing period in the first case was from August 3 to September 4, in the second case from August 14 to September 18, and in the third case from August 21 to September 23. It may also be an essential difference that the alfalfa on the "D" series was in its first year of growth and that on the "E" series in its second.

Another point may be worth considering, viz., It might be better to determine the time of cutting by the condition of the plants than by the calendar. To do this might eliminate some of the confusion of the effect of different conditions on the plants in the different periods of growth.

The plants themselves indicate their stage of growth in two ways. The development of the flowers and of the basal shoots are fairly well correlated and might furnish a safe guide for setting the time of cutting. I believe it would be better, in making any of these time of cutting experiments next year to set the time by the stage of growth of the plants rather than at intervals of one week.

Although the results from the two Yuma experiments appear now to be contradictory, it is by no means certain that when the full report for the season is in it will not show that the delay of the first cutting has given larger total yields on both sets of plats.



5 December, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes

Yuma (continued).

We have not, however, made any progress in determining the cause of this increased growth efficiency if it is found to be a fact.

C. S. S.

## DEMONSTRATIONS ON RECLAMATION PROJECTS.

## FIELD NOTES.

Minidoka.

On the morning of November 16 reports of sick hogs near Rupert and Burley were received. Both cases were investigated. The one at Rupert, on Mr. Wright's farm, was evidently not cholera, although he had lost three hogs. At the farm of Chas. Preston, on the South Side, cholera was found.

Dr. Henderson, of Twin Falls, arrived on the 17th. He visited Mr. Wright, but was unable to find the cause of the death of the hogs. One was killed and posted but no cholera symptoms were found. At Mr. Preston's farm cholera was found, as it was at Hartmans & Kellogs, a mile and a half away. Dr. Henderson remained three days and vaccinated both herds. All other cases in the same region where hogs appeared sick were visited. Four cases were investigated, but no cholera was found.

This is the third outbreak of cholera. Whether the infection was carried by magpies, pigeons, sparrows or coyotes cannot be definitely determined, although it seems to have been carried by the coyotes.

Mr. Farrell visited the Project on November 20, and spent two days in going over the work, and visiting farmers on the Project.

During the early part of the week ending November 28, numerous calls were sent in from Burley, asking for investigations of herds in the vicinity where cholera had been present. Dr. Henderson, of Twin Falls, was called up and





5 December, 1914.

## DEMONSTRATIONS ON RECLAMATION PROJECTS.

Field Notes

Minidoka (continued).

at once came up to aid in the investigations.

A careful investigation showed that the cholera had not spread. In practically every case, the trouble was found to be due to improper care and feeding. One case was found to be simply starvation.

In the vicinities investigated, most of the farmers run their hogs loose. In the fall many hogs are fattened on the cut-over grain fields and in the fields from which the sugar beets and potatoes have been harvested. As is common with this method of caring for hogs, when the grain is entirely consumed, the owner may not be aware of it, and continue to let the hogs seek their own living. In the neighborhood from which most calls come, the hogs were living mostly on frozen potatoes and sugar beets with perhaps a little alfalfa. The sickness which had been mistaken for hog cholera had been brought on by this improper feeding.

After investigating the conditions, it was decided to make an educational campaign. An automobile was secured and a trip made through the regions where the hogs are cared for in the manner described above. Numerous men were visited and advised against the practice of allowing their hogs to feed upon the frozen beets and potatoes. The advice was well taken, most men stating that they had had but little experience in hog raising, and that they were depending upon their hogs to pay their debts.

On the 28th of November, the meeting of the Pomona Grange, of Minidoka County, was attended, and the work discussed with the Grange members.

Dr. Henderson was engaged in the work on the Project three days during the week.

Mr. Burgess, County Superintendent of Cassia County, is much interested in the Boys' Club Work, and will be given assistance with this work on the South Side.

North Platte.

During the week ending November 21, O. B. Brown, located on Dutch Flats, held a registered Duroc Jersey hog sale. The offerings were spring pigs with good pedigrees and splendid





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## DEMONSTRATIONS ON RECLAMATION PROJECTS.

Field Notes

## North Platte. (continued)

individuality. The highest priced went for \$50. Two boars brought this price, and were sold to Geo. Mulligan, Henry, a Project man. The average price for all hogs sold was \$25. On December 1 another similar sale will be held at Morrill by W. B. Buckingham.

During the week a carload of shoats was shipped to the State Serum Plant at Lincoln, where they will be used in the manufacture of serum and virus. There were 156 in all. A price of 9 cents was paid for them. Another carload will be shipped during the following week.

There are about ten red hogs to one black hog on the Project.

Dr. Hanawalt, from Lincoln, in charge of hog cholera eradication work in the State, employed by the Bureau of Animal Industry, visited the Project during the week. He was well pleased with the hog cholera situation on the North Platte Project. Dr. C. M. Day, State Field Veterinarian, from Lincoln, in charge of hog cholera eradication for the State, also, visited the Project, and considers the hog cholera situation on this Project well in hand.

During the summer 4727 hogs, representing 75 herds, were vaccinated. All but 9 of these herds were infected with hog cholera at the time of vaccination. There were three herds in which cholera broke out that were not vaccinated. The outbreaks of cholera have been distributed as follows:

Henry- 0 ; Caldwell- 1 ; Morrill- 1 ; Mitchell- 16 ;  
Torrington- 0 ; Scottsbluff- 14 ; Gering- 1 ; Minatare-  
29 ; Melbata- 1 ; Bayard- 7.

On November 15, 12 carloads of fat hogs were shipped from the Valley to Denver. They were shipped to Bridgeport on the morning passenger, and there picked up by a Denver stock train. The swine industry is fast becoming the leading industry of the Valley, and if hog cholera can be kept down it will continue to grow rapidly. But a short time ago there were not 12 cars of fat hogs shipped from this section in two months.

During the week one herd of 315 spring shoats was vaccinated. The herd was slightly infected with cholera.



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DEMONSTRATIONS ON RECLAMATION PROJECTS.  
Field Notes

## North Platte (continued).

Cholera had been in a herd just across the road for 6 weeks. In a case like this it would seem advisable to treat the herd with the simultaneous treatment before they became affected, but the use of virus is prohibited in this section by a quarantine. Where the simultaneous method is used, the farmers are not at all particular about cleaning up the premises as they are not afraid of reinfection. However, where only the serum alone treatment is given, they know that the immunity will run out in about 6 or 8 weeks, and give more attention to cleaning up the premises, and about allowing the sick animals to run at large, this spreading the infection. When treating a herd, the method used by Mr. Jones is to confine all hogs visibly sick in a small quarantine pen, and treat the balance of the herd. Later, if any of the treated hogs show signs of sickness, they are at once placed in the quarantine pen where they remain until they either die or get well. About three or four weeks after vaccination the pens and yards are thoroughly disinfected several times. Where this plan has been followed, there has been no reinfection. Only two farms have had cholera this year where they had the disease last year, and one of these was reinfected by cholera by coming in from an outside source.





12 December, 1914.

## WESTERN IRRIGATION AGRICULTURE.

## FIELD NOTES.

## Umatilla.

During the week ending October 3, the maximum temperature was 81, minimum temperature 39, and precipitation .71 inch.

The work of seeding field C-2 to *Vicia villosa* was completed. Fields A2 and A3b were seeded to *Vicia villosa*.

Field C-1a was seeded to rye. The rye on fields B4a, B2 and D-1c was disced in for seeding.

The corn on fields C-1 and C2 was harvested.

During the week ending October 10, the maximum temperature was 73, minimum temperature 34.

The rye in field D2 was disced in for seeding. Fields A4c and the corn ground in fields C-1 and C2 were seeded to *Vicia villosa*.

Fields D5b and D5d, of the soil fertility experiment, were seeded to rye.

Some leveling was done along the flumes in field C2 where the soil was washed.

During the week ending October 17, the maximum temperature was 69, minimum temperature 37, and precipitation .39 inch.

Considerable work was done on the field notes prior to compiling the annual report.

The harness was cleaned and oiled.

During the week ending October 24, the maximum temperature was 65, minimum temperature 31, and precipitation .15 inch.

Mr. Allen made a trip to Kennewick to look into the grape industry there.

The second lot of hogs from the feeding experiment were marketed, and work was continued on the reports.

During the week ending October 31, the maximum temperature was 67, minimum temperature 32, and precipitation .01 inch.



12 December, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes

Umatilla (continued).

Work was started on graveling a road through the farm, between fields B2 and B3.

During the week ending November 7, the maximum temperature was 66, minimum temperature 26, precipitation .03 inch.

The last of the "eggs" in the eggplant experiment were picked.

Work was continued on the reports and graveling the road through the farm.

The alfalfa in fields A1, C1 and B1 was harrowed to eradicate the weeds.

Mr. Farrell was a visitor at the farm.

During the week ending November 14, the maximum temperature was 64, minimum temperature 23, and precipitation .27 inch.

Work was continued on the reports and on graveling the road through the farm.

The readings from the station on the hill were discontinued as there was a killing frost on the 8th.

During the week ending November 21, the maximum temperature was 53, minimum temperature 22, and precipitation .01 inch.

Mr. Allen and Mr. Dean left for Washington, D. C., on the 27th.

Work on the reports was continued.

During the week ending November 28, the maximum temperature was 56, minimum temperature 23.

During the week ending December 5, the maximum temperature was 57, minimum temperature 19, and precipitation .34 inch



12 December, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes

## Truckee-Carson.

A report on the results of the tomato variety test is given below: The varieties were planted in duplicate. Twenty-five plants of each variety were planted in each plot, with the exception of the Stone and Dwarf Champion, which had 50 plants of each variety in each plot. Three sets of yields were given: (1) The average yield per plant planted; (2) the average yield per plant of those which were left to bear fruit; (3) the average of numbers one and two.

Variety	Yield		Total	No. plants planted	Av. yield per plant planted	No. plants bear- ing fruit	Av. yield per plant bearing fruit	Av. yield per plant
	#1	#2						
Perfection	101.25	70.25	171.5	50	3.43	37	4.64	4.04
Ponderosa	98.15	61.55	159.7	50	3.20	36	4.43	3.82
Globe	110.75	56.25	167.0	50	3.34	45	3.72	3.53
Acme	70.00	91.00	161.0	50	3.22	43	3.74	3.48
Beauty	81.15	75.25	156.4	50	3.13	43	3.64	3.39
Hummer	83.50	64.25	147.8	50	2.96	40	3.69	3.33
Favorite	99.75	46.25	146.0	50	2.92	41	3.56	3.24
Paragon	39.50	88.25	127.8	50	2.56	37	3.45	3.00
Stone	111.25	145.00	256.3	100	2.56	78	3.29	2.93
Yellow Pear	49.00	71.50	120.5	50	2.41	42	2.87	2.64
Dwarf Champion	71.17	166.50	242.7	100	2.43	90	2.70	2.57
Coreless	75.75	40.75	116.5	50	2.33	43	2.71	2.52
Golden Queen	38.50	67.50	106.0	50	2.12	39	2.72	2.42
Red Pear	35.75	47.25	83.0	50	1.66	37	2.24	1.95
Dwarf Stone	40.50	41.75	83.0	50	1.65	46	1.79	1.72
Buckeye State	40.00	27.50	67.5	50	1.35	35	1.93	1.64
Magnus	28.00	35.25	63.3	50	1.27	37	1.71	1.49
Minor Bright	10.00	19.75	29.8	50	.60	45	.66	.63

Average yield per acre.... 6550 pounds.





12 December, 1914.

WESTERN IRRIGATION AGRICULTURE  
Field Notes

Truckee-Carson (continued).

The yields of the ear corn varieties grown on the farm  
of A. R. Merritt are given below:

VARIETY	Source	WEIGHT OF EARS						% loss Mois- ture	Yield per acre Lbs	Av. Height Stalks Lbs.
		September 18			October 22					
		SERIES			SERIES					
		I	II	I&II	I	II	I&II			
Disco 90 Day	Disco	40	30	70	29.5	22.0	51.5	26	1270	3.8
Northwestern										
Dent.....	"	33	26	59	29.0	19.0	48.0	19	1183	5.0
Calico	Bart	38	35	73	24.0	24.0	48.0	34	1183	6.0
Squaw	"	36	37	73	23.5	23.5	47.0	36	1159	5.0
Minn. Early										
Yellow.....	NK&Co.	36	30	66	24.0	22.5	46.5	30	1147	5.9
Gold Medal	"	34	30	64	24.5	21.0	45.5	13	1122	6.4
Disco 85 Day	Disco	35	30	65	24.5	20.0	44.5	32	1097	4.0
Early Pride	"	34	23	57	25.5	17.0	42.5	25	1048	3.6
Minn. #23	"	30	27	57	21.0	21.0	42.0	26	1036	4.6
Rustler White										
Dent.....	NK&Co.	31	22	53	22.5	18.5	41.0	23	1011	6.6
Disco Pride	Disco	30	24	54	22.5	18.5	41.0	24	1011	4.6
Australian White										
Flint.....	Bart	22	35	57	15.5	25.5	41.0	28	1011	4.6
Colorado Yellow										
Dent.....	"	31	32	63	19.5	21.0	40.5	36	1000	5.8
Extra Early Yellow										
Flint....	NK&Co.	30	23	53	20.0	16.0	36.0	32	888	4.3
Minn. #13	"	30	20	50	17.0	16.0	33.0	34	815	5.6
Smutnose Flint	"	24	19	43	17.0	14.5	31.5	37	778	4.0
Sterling White										
Dent.....	"	24	23	47	16.5	14.0	30.5	35	735	6.4
Smoky Dent	"	24	16	40	15.5	13.5	29.0	28	716	5.0
Leaming	Bart	29	32	61	12.5	13.0	25.5	58	630	7.0
Gehu Flint	Disco	18	10	28	16.0	9.0	25.0	11	617	2.5
Minn. King	NK&Co.	18	16	34	13.0	12.0	25.0	26	617	5.4
Improved King										
Phillip.....	"	20	11	31	14.0	8.5	22.5	27	556	5.3
Disco Flint	Disco	19	15	34	13.0	9.5	22.5	34	556	4.0
Longfellow	NK&Co.	16	15	31	10.5	10.0	20.5	34	506	5.0



12 December, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes

Truckee-Carson (continued).

In the table on the preceding page, in column under the word "Source", "Disco", "Bart" and "NK&Co." are abbreviations in the order given of the following seed firms: Dakota Improved Seed Company, Barteldes Seed Co., and Northrup, King & Co.

Scottsbluff.

During the week ending December 3 the manure was hauled from the corral to the newly seeded alfalfa. A portion of an old straw stack was also hauled out and spread on field H, Series VI and VII.

The following are the potato yields from field K.

Series & Plat	Rot. No.	Total yield Bus. per acre	market- able.	Preceding crop	
				1913	1912
I-1	4	119.2	54	Potatoes	Potatoes <del>cc</del>
-4	27	131.1	43	Oats-rye	Potatoes <del>cc</del>
-14	25	253.5	75	Oats-manure	Potatoes <del>cc</del>
-16	21	236.9	66	Beets-manure	Potatoes <del>cc</del>
II-1	26	142.5	52	Corn	Potatoes <del>cc</del>
-4	31	243.3	69	Beets	Oats-manure
-10	61	299.4	80	Alfalfa	Alfalfa
-14	40	280.0	80	Alfalfa	Alfalfa
-16	20	146.0	51	Beets	Potatoes
III-4	30	214.0	66	Beets	Oats
-10	60	272.2	82	Alfalfa	Alfalfa
IV-14	44	319.3	82	Alfalfa	Alfalfa
-16	24	146.2	51	Oats	Potatoes

The following table shows the effects of manure and alfalfa on potato yields:

	No manure or alfalfa		Manure		Alfalfa	
	Bus. per acre	market- able	Bus. per acre	market- able	Bus. per acre	market- able
Max. yield	214.2	66	253.5	75	319.3	82
Min. yield	119.	43	236.9	66	272.2	80
Mean yield	149.8	53	244.6	70	292.7	81





12 December, 1914.

WESTERN IRRIGATION AGRICULTURE  
Field Notes

Scottsbluff (continued).

Dairy Report for the month of November.

The cow that was expected to freshen this month does not show any indications of having a calf within a reasonable length of time.

Since the first of the month the cows have been fed about 8 pounds of beets each; this has resulted in an increased milk flow.

Cow No.	Lbs. milk for November	Butter fat	Total fat	Price of butter fat	Value of butter fat
3	189.0	4.6	8.69	28¢	\$2.43
4	368.1	5.0	18.4	28¢	\$5.15

Feed consumed and value of feed.

Lbs. hay	Lbs. Value	Lbs. grain	Lbs. Value	Lbs. Beets	Lbs. Value	Total feed	Total Receipts
1000	\$2.25	120	\$1.5	480	\$1.20	\$4.95	\$7.58

Huntley.

The time-of-cutting-alfalfa test started in 1913 on ten one-quarter acre plats in field A-I has been continued during 1914 on the same plats. The plan of the test provided for harvesting the first plat in each crop at the time of the first appearance of the basal shoots and each succeeding plat at five day intervals. The test was conducted on duplicate plats, making five pairs of plats, so that there was an interval of twenty days between the harvesting of the first and the last plat in the series. Rain at about the time the first plats in the first crop should have been harvested made it impossible to harvest these plats at the proper time so that the



12 December, 1914.

WESTERN IRRIGATION AGRICULTURE  
Field Notes

## Huntley (continued)

first two pairs of plats were harvested on the same date, June 12. For the remainder of the first crop and for the second and third crops the plan was follows as outlined.

The plats were irrigated, each according to its own water requirements and were all irrigated once for each crop.

The yields obtained during the season and other data are given in the following table:

Plats	First Crop		Second Crop		Third Crop		Fourth Crop		Crops	Total Yield
	Date Cut	Yield	Date Cut	Yield	Date Cut	Yield	Date Cut	Yield		
A-I-6	6/12	1.98	7/16	1.68	8/25	1.54	10/12	1.28	4	6.48
-11	6/12	2.04	7/16	1.60	8/25	1.39	10/12	1.32	4	6.35
Average		2.01		1.64		1.46		1.30		6.41
A-I-7	6/12	1.86	7/21	1.63	9/1	1.76	10/12	.76	4	6.06
-12	6/12	1.86	7/21	1.58	9/1	1.40	10/12	.72	4	5.56
Average		1.86		1.63		1.58		.74		5.81
A-I-8	6/18	1.78	7/26	1.58	9/4	1.47			3	4.83
-13	6/18	1.87	7/26	1.58	9/4	1.31			3	4.76
Average		1.82		1.58		1.39				4.79
A-I-9	6/22	1.67	7/31	1.57	9/9	1.44			3	4.68
-14	6/22	1.76	7/31	1.62	9/9	1.57			3	4.95
Average		1.71		1.59		1.50				4.81
A-I-10	6/27	1.89	8/5	2.29	9/15	Lost			2	4.18
-15	6/27	2.09	8/5	2.52	9/15	Lost			2	4.61
Average		1.98		2.40						4.39
Av. crops		1.88		1.77		1.48		1.04		

Contrary to the results obtained in 1913 the yields of the second crop were not increased consistently with the length of the growing period of the first crop, although in the case of the last plats harvested the yield was much higher than from any of the other plats. Neither was there an increase in the yield of the first crop as the harvesting was delayed.



12 December, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes

Huntley (continued).

Considering the total yields, it is seen that where four crops were harvested the yield was much higher than the total yields from plats that were cut only three times. In this connection only the first four sets of plats can be considered as the weights of the third crop on the last two plats were lost. The yields of the fourth crop were higher than can be expected in an ordinary season since the date of first fall frost was about three weeks later than usual. It was 17 days later this year than in 1913.

ALFALFA SHRINKAGE DETERMINATIONS

In connection with the time-of-cutting test with alfalfa in field A-I, determinations of the amount of shrinkage in alfalfa cut at different stages of growth have been made. From each plat at the time of cutting a ten-pound sample of green alfalfa was taken and hung up in a dry shed where it was left for three or four weeks or until they were thoroughly air dried. At the time each sample was taken, the height, length of basal shoots, and flowering stage were estimated.

The following table gives the length of basal shoots, the flowering stage of each sample at the time it was cut, and the loss in weight on drying, expressed as a percentage of the green weight.

Plat No.	Date cut	Height at harvest	Basal Shoots	Bloom	Loss in weight, % of green weight.		
					Single sample	Average	No. of samples
First Crop							
A-I- 6	6/12	30"	3"	Trace	77.5		
-11	6/12	30"	3"	Trace	78.1	77.8	2
A-I- 7	6/12	30"	3"	Trace	80.1		
-12	6/12	30"	3"	Trace	76.1	78.1	2
A-I- 8	6/18	31"	4"	1/10	71.9		
-13	6/18	32"	4"	1/10	71.9	71.9	2
A-I- 9	6/22	33"	4"	1/10	75.0		
-14	6/22	33"	4"	1/10	72.5	73.7	2
A-I-10	6/27	35"	4"	1/4	72.5		
-15	6/27	36"	4"	1/4	69.4	70.9	2
						74.5	10





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WESTERN IRRIGATION AGRICULTURE  
Field Notes

Huntley (continued).

Plat No.	Date cut	Height at harvest	Basal Shoots	Bloom	Loss in weight, % of green weight		
					Single sample	Average	No. of samples
Second crop							
A-I- 6	7/16	28"	1"	1/20	85.0		
-11	7/16	28"	1"	1/20	84.4	84.7	2
A-I- 7	7/21	31"	3"	1/10	76.3		
-12	7/21	30"	3"	1/10	75.6	75.9	2
A-I- 8	7/26	34"	3"	1/5	79.4		
-13	7/26	32"	3"	1/10	66.9	73.1	2
A-I- 9	7/31	34"	2"	1/5	73.7		
-14	7/31	33"	2"	1/5	71.9	72.8	2
A-I-10	8/5	35"	4"	1/2	72.5		
-15	8/5	34"	4"	1/2	74.4	73.4	2
						76.0	10
Third Crop							
A-I- 6	8/25	30"	1"	1/20	80.0		
-11	8/25	26"	1"	1/20	77.5	78.7	2
A-I- 7	9/1	26"	2"	1/10	78.1		
-12	9/1	24"	2"	1/4	76.3	77.2	2
A-I- 8	9/4	24"	2"	1/20	80.0		
-13	9/4	25"	2"	1/10	81.9	80.9	2
A-I- 9	9/9	25"	1"	1/20	82.5		
-14	9/9	26"	1"	1/20	81.3	81.9	2
A-I-10	9/15	27"	1"	1/20	77.5		
-15	9/15	27"	1"	1/20	70.7	74.1	2
						78.6	10

It is seen that the amount of shrinkage was slightly higher in the second and third crops. This difference is greater than in a similar test in 1913. The average shrinkage of all the samples from the three crops was 76.3 percent, while in 1913 it was 76.5 percent.

A table in which the samples are classified according to crops, length of basal shoots, and flowering stage is given on the following page. From this it appears that the shrinkage



WESTERN IRRIGATION AGRICULTURE  
Field Notes

Huntley (continued).

is lightly less as the stage of growth advances.

Classification	No. of Samples	Loss in weight, percent			
		Highest	Lowest	Range	Average
First Crop	10	80.1	69.4	10.7	74.5
Second Crop	10	85.0	66.9	18.1	76.0
Third Crop	10	82.5	77.0	11.8	78.6
Three Crops.....	30	85.0	66.9	18.1	76.3
Length of basal shoots					
1 inch	8	85.0	70.7	14.3	79.8
2 inches	6	81.9	71.9	10.0	75.9
3 inches	8	81.0	66.9	13.2	76.2
4 inches	8	75.0	69.4	5.6	72.5
All samples.....	30	85.0	66.9	18.1	76.3
Flowering stage:					
Trace of bloom	4	80.1	76.1	4.0	77.9
1/20 bloom	9	85.0	70.7	14.3	79.8
1/10 bloom	9	81.9	66.9	15.0	74.4
1/5 bloom	3	79.4	71.9	7.5	75.0
1/4 bloom	3	76.3	72.5	3.8	72.7
1/2 bloom	2	74.4	72.5	1.9	73.4
All samples	30	85.0	66.9	18.1	76.3

DEMONSTRATIONS ON RECLAMATION PROJECTS

FIELD NOTES.

North Platte.

The hog cholera situation on the Project continues to improve. Only one new case of cholera was found this week ending December 5. One case of reinfection was found where the herd had become reinfected after the immunity from serum alone had run out. This case





12 December, 1914.

## DEMONSTRATIONS ON RECLAMATION PROJECTS.

Field Notes

## North Platte (continued).

of reinfection was largely due to carelessness on the part of the party whose herd was affected, as he allowed his sick hogs to run at large over the premises, thus spreading infection over quite a large area and no systematic disinfection of the premises was followed.

During the week a purebred registered Duroc-Jersey hog and Holstein cattle sale was held on the farm of W. B. Buckingham, near Morrill. The offerings were of a fair quality. Spring shoats brought about \$20, and bred sows from \$40 to \$57. The top yearling heifer brought \$81 and calves from \$40 to \$42. Mr. Buckingham contemplates holding a similar sale next year and hopes to have a superior class of hogs and cattle to offer.

Alfalfa hay is now selling for about \$5.50 per ton loose, or \$7.50 when baled.

At present only a very few farmers are engaged in the dairy industry, but a good number have expressed their desire to take up this line of work as soon as they can secure satisfactory dairy cattle. Practically every farmer that is milking three or more cows has a cream separator.

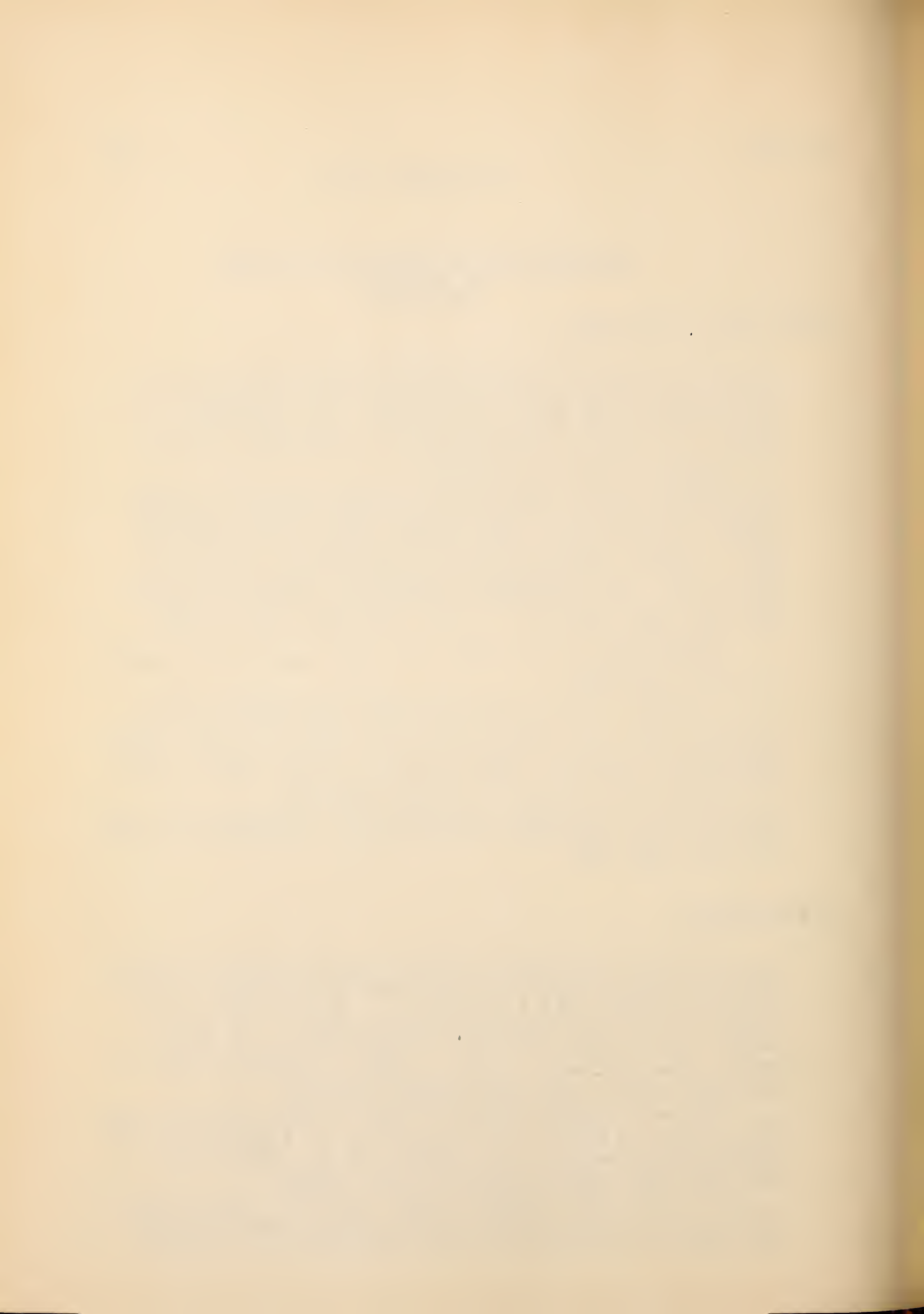
According to figures furnished by the Reclamation Service, there are now 22,000 hogs on the Project, and increase of 8,000, or 57.1%, over 1913.

## Truckee-Carson.

During the week ending November 28, the Churchill County Creamery Company shipped into the Project 4 carloads of cattle from the northern part of California. These cattle are intended for the dairy business on the Project. The cattle range in age from 2 to 4 years. About one-fourth of the number are grade Holsteins, and the rest are short horns and shorthorn grades, with some Ayershire mixture.

The best of these cattle will sell for \$100 each, and from that on down to \$65 for the youngest and least desirable. The average daily quality of the shipment of the cattle is not high, and their time of calving is not certain.

There is a great demand for the good dairy cattle on the Project, to furnish a market for the immense crop of alfalfa hay; some of the farmers have two crops on hand at present.



12 December, 1914.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

Field Notes

Truckee-Carson (continued).

The next importation of cattle by the Creamery Company will probably be from the eastern dairy sections, where it is hoped that a good number of high class young dairy cattle may be obtained.

North Platte.

Under date of Nov. 29, Mr. Jones reports that the hearty cooperation of the State Live Stock Sanitary Board is had in the hog cholera work on the Project.

In order to prevent the promiscuous shipping in of hogs as was done in 1913, which was the cause of the cholera outbreak here, the Sanitary Board has issued the following regulations. These quarantine regulations cover not only the Project but also some surrounding territory in the same drainage basin.

"MOVEMENT OF HOGS INTO SCOTTSBLUFF, BANNER, MORRILL, BOX BUTTE,  
AND THE SOUTH HALF OF SIOUX COUNTIES, PROHIBITED,

Except as per Nebraska Live Stock Sanitary Board Prescribing  
Rules and Regulations

Relative to the

SHIPMENT AND QUARANTINE OF HOGS

1. Whereas, The Deputy State Veterinarian, in an official report to the Nebraska Live Stock Sanitary Board, dated June 28th, 1914, states, that hog cholera is more or less prevalent in the state of Nebraska and in order for the Live Stock Sanitary Board and the Deputy State Veterinarian to control and eradicate hog cholera from said district, the following rules and regulations are promulgated.

2. NOW, therefore, The Nebraska Live Stock Sanitary Board by virtue of the authority in us vested by the provisions of Section 145 Revised Statutes of 1913, do hereby quarantine against moving or driving or carrying of hogs into or the unloading of hogs in the said Scottsbluff, Banner, Morrill, Box Butte and the South Half of Sioux Counties, from other counties or localities except under the following rules and regulations duly adopted by the NEBRASKA LIVE STOCK SANITARY BOARD on the 1st day of July, 1914.





12 December, 1914.

DEMONSTRATIONS ON RECLAMATION PROJECTS  
Field Notes

North Platte (continued).

## RULES AND REGULATIONS.

1. Hogs brought from the quarantine area of Scottsbluff, Banner, Morrill, Box Butte and South Half of Sioux Counties, for immediate slaughter must be unloaded on the premises where they are slaughtered, and slaughtered within 48 hours after arrival.

2. Each lot of hogs shipped, removed in any manner into Scottsbluff, Banner, Morrill, Box Butte, and the South Half of Sioux Counties for feeding, pasturing, or breeding purposes, shall be accompanied by a certificate of health issued by a graduate veterinarian stating that they have been immunized against hog cholera at least twenty-one days before shipping with the double method, or not more than fifteen days with the single method.

3. All certificates of health made in compliance with these rules shall be made in triplicate, one copy of which shall be sent to the Deputy State Veterinarian of Lincoln, Nebraska, one to the U. S. Animal Husbandry, Mitchell, Nebraska, and one to accompany the hogs.

4. Wherever it is found that any hogs have been brought into Scottsbluff, Banner, Box Butte, Morrill, and the South Half of Sioux Counties, not in compliance with these rules, it shall be the duty of the Deputy State Veterinarian to place such hogs in quarantine and hold same in isolation until twenty-one (21) days after they shall have been immunized against hog cholera at the owner's expense.

5. All cars carrying hogs into Scottsbluff, Banner, Morrill, Box Butte and the South Half of Sioux Counties for feeding, pasturing, or breeding purposes, shall be cleaned, washed, and disinfected before the stock is loaded, and the hogs shall not be loaded from the public stock yards, but must be loaded from separate shutes or directly from wagons, and must be unloaded in the same manner at destination.

WHEREAS, all stock yards are considered cholera infected, it is deemed necessary for the purpose of preventing the spread of the infection; that railroad companies and private parties wash, clean, and disinfect all public and private stock yards and shutes in Scottsbluff, Banner, Morrill, Box Butte, and the South Half of Sioux Counties. The cleaning, washing and disin-





12 December, 1914.

## DEMONSTRATIONS ON RECLAMATION PROJECTS.

Field Notes

North Platte (continued).

fecting of all public and private stock yards must be in accordance with the rules and regulations of the Bureau of Animal Industry under the supervision of the Deputy State Veterinarian. No virus shall be shipped into or used in said district for vaccination or any purpose whatsoever.

WHEREAS, all public and private stock yards are considered infected with hog cholera, the removal of hogs from these yards is prohibited except for shipment to market or for immediate slaughter.

All premises in Scottsbluff, Banner, Morrill, Box Butte, and the South Half of Sioux Counties where hog cholera was known to exist in 1913, or whereon cholera may be found to exist, shall be cleaned and disinfected under instructions from the Deputy State Veterinarian Department. If it is found impossible to disinfect any farm yards, the owner or agent shall be required to construct new yards and pens in which his hogs shall be kept.

(Signed) NEBRASKA LIVE STOCK SANITARY BOARD."

Where cholera is found on a farm the following notice is posted where it can be seen by passersby. The notice is on a bright red cardboard.

WARNING  
HOG CHOLERA  
KEEP OUT

---

Persons visiting these premises must keep out of hog lots. Parties living on these premises must not go near the hog lots on any other farm.

Signed. L. C. KIGIN,  
Deputy State Veterinarian

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Aside from keeping farmers from visiting their neighbors cholera-infected herds and perhaps carrying the disease home to their own herds, it has an educational value in that it shows farmers how the disease is spread and what precautions to take in preventing their herds from becoming infected.

Only two new cases of cholera were found during the week ending November 28. One of them was in a district that has been



12 December, 1914.

## DEMONSTRATIONS ON RECLAMATION PROJECTS.

Field Notes

## North Platte (continued).

having the cholera, the other in a locality where no disease has been found this summer. The latter herd must have had infection for some time as the disease was spread throughout almost the entire herd. Only about 12% of the herd was vaccinated. The owner had been busy hauling \$7.50 alfalfa seven and one-half miles, and neglecting his hogs.

On the 28th the second load of shoats was shipped to the State Serum Plant at Lincoln. There were 155 in the car. Average weight 106 pounds: price paid farmers  $8\frac{1}{2}\phi$ .

Mr. Farrell spent a part of the week on the Project.

## ALFALFA SEED FOR FIELD STATIONS.

Mr. Aune reports that he has 50 bushels of good, clean alfalfa seed, produced during the past season on the Belle Fourche Experiment Farm, available for distribution to the other field stations. This seed was grown under irrigation at the Experiment Farm. The original seed was secured from a Mr. Martin, on Whitewood Creek, in western South Dakota, and the same strain is now being sold by the Dakota Improved Seed Company under the name of "Martin Common Alfalfa Seed".

If any of the farm superintendents desire to use some of this seed for planting during the spring of 1915, it is suggested that they advise the office as soon as possible regarding the amount they will require, and when they wish to have it delivered.





19 December, 1914.

## WESTERN IRRIGATION AGRICULTURE.

## FIELD NOTES.

## San Antonio.

During the week ending Dec. 12, the maximum temperature was 58, minimum temperature 22, and precipitation .33 inch.

The first killing frost of the season occurred on the 10th, when the temperature went down to 25 degrees.

The cotton land on C5 was partially plowed and the forage crops on the rotation plats were hauled in during the week. The yields will be reported in the next report.

The orchard on B3 was pruned the later part of the week.

Mr. Scofield spent the first three days of the week at the station. During his stay at the farm he visited the Medina Dam and Boerne.

## Truckee-Carson.

During the week ending November 28, the maximum temperature was 60, minimum temperature 14.

The work of leveling the raw land west of field B, and of laying tile in field H, was continued throughout the week.

Dr. George Thomas, of the University of Utah, visited the Project from the 25th to the 29th of November. He visited the Project for the purpose of making a survey of the credit situation on the Project for the Office of Markets.

## Scottsbluff.

Corn and Sugar Beet Feeding Experiment.

Mr. Holden has reported as follows on an experiment, recently concluded at Scottsbluff, to determine the feeding value of sugar beets for finishing hogs.



WESTERN IRRIGATION AGRICULTURE.  
Field Notes.

Scottsbluff (continued).

Eighteen hogs were divided into three lots of six hogs each. Care was taken in dividing the hogs so as to get the lots as uniform as possible. Lot 1 was fed 4% corn; lot 2, 3% corn plus sugar beets, and lot 3, 2% corn plus sugar beets. In addition to this each lot received all the good alfalfa hay it would eat. Lots 2 and 3 received all the sugar beets they would eat up clean.

The hogs were fed twice daily, morning and evening. The daily ration for lot 1 was divided into two equal feeds; lot 2 received 1% corn in the morning and 2% in the evening, while lot 3 received corn in the evening only. The sugar beets and hay were fed about an hour before the corn was fed. A tabulated statement of the results is given below:

Results of the corn and sugar beet feeding  
experiment.

	Lot 1. 4% corn Hay	Lot 2 3% Corn, Hay, Beets	Lot 3 2% Corn, Hay, Beets
Number of hogs.....	6	6	6
Number of days on feed.....	60	60	60
Initial weight, pounds.....	798	795	797
Final weight, pounds.....	1333	1318	1274
Total gain, pounds.....	535	523	477
Corn fed, bushels.....	36.6	26.6	18.3
Beets fed, pounds.....	----	3380	5530
Alfalfa hay fed, pounds.....	344	250	310
<sup>a</sup> Hogs paid for bu. corn.....	\$0.94	\$0.94	\$0.94
<sup>a</sup> Hogs paid for ton hay.....	\$20.	\$20.	\$20.
<sup>a</sup> Hogs paid for ton beets.....		\$5.47	\$4.82
Value of gains @ \$7 cwt.....	\$37.45	\$36.61	\$33.39
Total market value of feeds fed....	\$27.12	\$28.16	\$27.71
Net returns.....	\$10.33	\$ 8.43	\$ 4.67
Cost per cwt. gain.....	\$ 5.07	\$ 5.38	\$ 5.80

<sup>a</sup>

In figuring the price paid for each feed the hogs were charged market prices for the other feed or feeds.





19 December, 1914.

## WESTERN IRRIGATION AGRICULTURE.

Field Notes.

## Scottsbluff (continued).

With other feeds, except the one specified in each case, valued at market price, the hogs paid for:

	Lot 1 4% corn	Lot 2 3% corn	Lot 3 2% corn
Ton of sugar beets	-----	\$10.00	\$ 7.04
Bushel of corn	\$ 1.00	\$ 1.04	\$ 1.03
Ton of alfalfa hay	\$64.40	\$72.00	\$41.16

The above table brings out the following:

1. The higher the corn ration the greater the gains.
2. Lot 1 made gains enough to pay \$20.00 a ton for alfalfa hay and 94 cents a bushel for corn.
3. If lots 2 and 3 are charged the same price for corn and hay that lot 1 paid, they paid \$5.47 and \$4.82, respectively, per ton of beets.

The one outstanding point brought out in this experiment is the high price realized from each crop when sold in the form of pork. This emphasizes very strongly the advisability of marketing as much of the crops as possible through hogs; especially is this true of corn and alfalfa.

According to the results of this experiment, corn at 72 cents a bushel is a cheaper feed for finishing hogs than sugar beets at \$5.00 a ton. This does not necessarily mean that beets cannot be fed to hogs with a profit. It does show, however, that if a feeder is buying his feed it is better business to buy corn at 72¢ than to pay \$5 for beets, or if a farmer has more corn and beets than he can feed, he had better sell his beets and feed the corn. But if he has hogs enough to consume both corn and beets, the hogs will pay more than market price for the beets and the farmer will save the expense of hauling the beets and also retain the fertility on the farm.

As to whether it would pay a farmer to sell all his beets and buy corn will depend on the distance he is from the beet dump and how far he would have to haul the corn. In the majority of cases it is doubtful if it would pay him to do so. It certainly would not if he were more than three or four miles from the beet dump.





19 December, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes.

## Scottsbluff (continued).

As the farmer can, in most beet growing sections, grow \$5.00 beets cheaper, where he is saved the expense of hauling, than he can 72¢ corn, it would seem a good practice to grow both corn and beets for finishing hogs and to feed them 3% corn and all the beets and hay they would clean up.

## Huntley.

Report of Test with Soy Beans, Peas, Cowpeas,  
Rape and Vetch at the Huntley Experiment  
Farm, 1914.

At the request of the Montana State Experiment Station, tests of a number of varieties of soy beans and peas, and one variety each of cowpeas, vetch and rape have been carried on in a very limited way during 1914. All of these crops were grown on land that was fallow in 1913 and cropped to oats in 1912. Planting was done on May 9 with a double disk drill and all crops were in rows.

Soy Beans.

Seven varieties of soy beans were grown in duplicate rows. The rows were 3 feet apart and 132 feet long. Of the seven varieties, the seed of one failed to germinate and only four of the others matured at the date of the first killing frost, which occurred on October 6. The frost-free period for the season was about three weeks longer than usual, so that the season was unusually favorable for this crop. All varieties were irrigated three times during the season, on July 9 and 22, and August 1. All varieties made a vigorous growth and produced heavy foliage, the varieties failing to mature seed producing the heaviest foliage. Seed was furnished by the Educational Bureau of the Paint Manufacturers' Association, of Gebbsboro, N. J.

Yields and other data are given in the following table:

Variety	Date of Maturity	Height	Av. of two rows	
			Plat, lbs.	Acre, lbs.
#5001	9/5	23"	3.5	385
5101	9/15	32"	5.0	550
1006	Not matured	38"		
703	" "	36"		
2203	9/25	35"	4.5	495
306	9/20	34"	5.	550



19 December, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes.

Huntley (continued).

Peas.

One plats each of seven varieties of garden peas were grown. Plats were  $4\frac{1}{2}$  feet by 132 feet, with two rows 12 inches apart to a plat. Two irrigations were applied, on July 9 and July 22. Seed was furnished by the Montana Experiment Station.

Yields are given in the following table:

<u>Variety</u>	<u>Yield</u>	
	<u>Plat, lbs.</u>	<u>Acre, lbs.</u>
Alaska.....	11	846
Admiral.....	3	231
Advancer.....	8	615
Notts Excelsior.....	6	461
Suttons Excelsior...	7	538
Gradus.....	9	692
English wonder.....	3	231

Cowpeas, vetch and rape

But one row of each of these crops was grown. Cowpeas, variety-Whippoorwill, made a very light growth, reaching a height of about 14 inches. Only about one-third of the seed was matured at the date of first frost. Vetch, variety-common spring, made very good growth, and produced a heavy foliage. Height at maturity was 34 inches. Not all of the seed was matured at the time of the first frost. Rape, variety-dwarf Essex, produced a heavy growth of foliage and reached a height of about 30 inches.

## DEMONSTRATIONS ON RECLAMATION PROJECTS.

## FIELD NOTES.

## North Platte.

During the past month the 3-month old pigs in a number of herds have been found to be affected with an ailment which resembles hog cholera. The ordinary hog cholera lesions are





19 December, 1914.

DEMONSTRATIONS ON RECLAMATION PROJECTS.  
Field Notes.

## North Platte (continued).

absent, however, and the only abnormal condition found is a yellowish incrustated condition of the mucus membrane of the intestines. Healthy and thrifty pigs when affected with the disease soon go to pieces, "scours" sometimes follows and the pigs finally waste away and die. In a herd usually about 33% of the young pigs are affected. In no case has it been known to affect shoats after they have reached the age of 5 months. In all but one herd that has been examined, intestinal worms have been found. Still, when the pigs have been treated for worms, as a rule they do no better. A portion of intestine taken from an affected pig was sent to Dr. Ward, Chief of the Pathological Division of the Bureau of Animal Industry, and he pronounced it a very mild case of hog cholera and advised vaccination. Dr. C. M. Day, State Field Veterinarian, also pronounced the trouble hog cholera. One very strange feature about the disease is that it does not affect the older shoats. One herd affected with this trouble has been recently vaccinated. Later a report will be made of the results.

The hog cholera situation on the Project continues to improve. Only one small outbreak was reported during the week ending December 12. The ground is covered with 6 inches of snow and zero weather prevails. It is quite probable that the disease will give but little trouble until next spring.

During the week ending December 12, a community was visited where 6 herds had become affected with the cholera through the carelessness of one man. The 6 herds represented a total of 645 hogs. Of this number 191 were lost, or a loss representing about \$955.00. This man thoughtlessly, or otherwise, returned to its owner a hog that he had been using. A few days after the hog was returned to its owner, a call was made to vaccinate the first herd mentioned. About 10 days later, hog cholera broke out in the second herd. This infection continued to spread from the second herd until 6 herds had become diseased.

## Minidoka.

On December 1 calls were again received from Marshfield. No cholera was found. One case was pneumonia, while the other, involving a loss of three small pigs, was simply



19 December, 1914.

DEMONSTRATIONS ON RECLAMATION PROJECTS.  
Field Notes.

Minidoka (continued).

a case of smothering.

The field men in agriculture in the State of Idaho assembled in Twin Falls during the week ending December 5, to consult on future work. This was held at the time of the State Seed Show. Consultations were held with Dr. Sullivan, of the Hog Cholera Control of the Bureau of Animal Industry, Mr. Johnson, of the U. S. Dairy Division, Dr. Brannon, President of the University of Idaho, Prof. Center, Director of Agricultural Extension, Mr. J. W. Jones, of the State Immigration Commissioners' Office, and Mr. Ireland and Mr. Morrison, County Agents in the counties of Canyon and Oneida, respectively. All of these men are much interested in the work and the Government and University field men will give much assistance in the way of meetings and special demonstrations.

An extra effort will be made to entirely stamp out hog cholera. Only eleven cases have ever been known on the Project. The first of these occurred in October. As the hogs on the Project, for the most part, run at large, it is very difficult to keep the disease from spreading. All infected herds are quarantined and most of the men have thoroughly cleaned and disinfected their places. In spite of this, one or two new outbreaks have been occurring every week. It is necessary that the State Officers be called in to enforce the herd and quarantine laws although the big majority of the people are taking extra precautions against the introduction of cholera on their farms, are keeping up their hogs, and are keeping away from the quarantined hog lots.

It is agreed by all that every effort should be made to eradicate cholera completely now before the Project is badly infected. Dr. Sullivan and Dr. Henderson are giving the work much attention, visiting the infected areas practically every week, and directing the work of disinfecting.

On December 6, the herds of Mr. Livingston and Mr. Brantly were vaccinated. Mr. Livingston lives in the neighborhood where the second outbreak of cholera had occurred, while Mr. Brantly lives in the neighborhood of the third outbreak. In the case of Mr. Livingston's herd, it was not



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19 December, 1914.

DEMONSTRATIONS ON RECLAMATION PROJECTS.  
Field Notes.

## Minidoka (continued).

possible to trace the method of infection. Mr. Brantly had been on the farm of Hartman and Kellog shortly after the cholera had been found there, and supposedly went among his own hogs without disinfecting his shoes.

The Annual Meeting of the Jersey Breeders' Association met in Rupert on December 8. This was organized a little over a year ago. It was decided to organize a dairy association, of which this present association would be a branch. The purpose of the new association will be to encourage the use of good pure bred sires and to secure better markets for the dairy products. Rupert now has a cooperative creamery that was organized by a professional promoter; consequently, it was not run at a profit and was closed down shortly after it had opened. This creamery is still owned by the farmers and business men. Three creamery companies receive cream from here. While it is not believed that there is enough cream shipped to warrant opening the creamery here, an effort will be made to organize a cooperative cream-producers association, the entire output to be sold to the company that will give the best price for it. As soon as there is enough cream produced to make it profitable to reopen the creamery, this will be done.

The survey of School District #13 began some time ago and was completed the week ending December 12. Conditions were found to be similar to those in Districts 6 and 12. Four kinds of pure bred boars are kept. There are no bulls except shorthorns. As a rule the horses are of better quality than are either the cattle or hogs. Seven men are taking good care of their hogs.

The shipment of hogs from both Burley and Rupert was unusually heavy during the week.

Horses are now being bought here for use in the French army. As the price is low, ranging from \$65 to \$90, or at most, \$100 per head, but few good ones are being sold.

## Truckee-Carson.

The Churchill Co. Creamery received 13,991 pounds of butterfat from 125 patrons during the month of November. The average price per pound for butter fat for the month was 32¢,





19 December, 1914.

DEMONSTRATIONS ON RECLAMATION PROJECTS.  
Field Notes.

Truckee-Carson (continued).

making a total of \$4,477 paid to the patrons in November. In addition to the patrons of the Churchill Creamery, there are six dairymen shipping cream out of the Project.

Within the past two weeks there has been imported into the Valley twenty-six high grade Holstein cows and one registered bull. They are owned by three ranchers. They show good breeding and the cows are all heavy with calf by registered bull. They were secured at a cost of \$100.00 each. A herd of 40 very high Jersey cattle have recently been shipped into the Project from Utah at an average price of \$85 per head.

The raising of turkeys promises to become an important industry of the Truckee-Carson Project. From replies received from a circular letter sent to the farmers of the Project, there was found to be about 7,000 turkeys for sale for the holiday market, and 2,500 that would be kept for breeders, some ranchers keeping as many as 125 breeders. The climatic conditions of the Valley seem to be especially adapted to the raising of poultry. The principal difficulty is in securing a satisfactory market. It is hoped that this office may be of assistance in securing a better market in the future by encouraging community advertizing of the industry among the produce commission firms of the country, and by fostering cooperative marketing.

In cooperation with the Government Experiment Station, several dairy ranchers are preparing to grow trial fields of mangel wurzels to be used as a supplementary feed for dairy cows. Cooperative experimental work will be carried on in feeding this root crop as a supplement to alfalfa. These experiments will start as soon as the beet crop is harvested next fall.

LANTERN SLIDES FOR FIELD MEN.

Mr. Jones has suggested that the field men employed in the office of Demonstrations on Reclamation Projects might well cooperate in the matter of getting up sets of lantern slides for use in neighborhood meetings held in connection



19 December, 1914.

DEMONSTRATIONS ON RECLAMATION PROJECTS.  
Lantern Slides for Field Men.

(continued).

with the demonstration work. Any of the field men who have negatives from which they wish to have slides made should send them to the Washington office, together with a description of each negative. Copies of these descriptions will then be published in the Weekly Bulletin, so that each other field man can indicate the subjects of the slides which he would like to have for his use.

A list of descriptions of negatives recently sent in by Mr. Jones, which may be useful to other field men, is given below:

<u>Neg. No.</u>	<u>Description</u>
611	Dilapidated and unsanitary conditions. (hog yards).
612	Hog dead from cholera in irrigation lateral.
613	Sanitary hog yards.
614	" " "
44	Hogs in irrigation lateral.
730	Portable farrowing houses, 2 sows for each house.
421	Self-feeders for hogs.
68	Cheap movable hog houses with doors in roof to admit sunlight.
26	A fairly good hog house; not enough sunlight.
425	Grazing beet tops.
710	Double farrowing house.
422	Hog house.
423	" "
26	Unsanitary hog wallow.
736	Feeding pens separated from buildings and other lots.
920	Hog house on experiment farm, Mitchell, Neb.
65	Hogs ready for market, fattened on alfalfa pasture and corn.
64	Temporary farrowing house; 50% pig crop lost in this house in early spring, 1914.
62	Irrigation water allowed to run through hog lots. This herd contract cholera in this way.





19 December, 1914.

DEMONSTRATIONS ON RECLAMATION PROJECTS.  
Lantern Slides for Field Men.

(continued).

<u>Neg. No.</u>	<u>Description</u>
702	Very satisfactory hog house with long diameter extending north and south; pens on both sides; cost \$400.
259	Unthrifty herd; allowed to run in unsanitary hog wallow.
633	Pigeons in lot with hog that died with cholera the following day.
45	Hogs in irrigation lateral; contracted cholera three weeks after picture was taken.
263	Hogs in alfalfa.
262	Hogs in irrigation ditch. A very good way to contract hog cholera.
52	Elaborate hog house with concrete floor; very cold in winter.
50	Hog houses.
51	Inexpensive hog house.
47	Group of Chester white hogs.
63	Pigeons in herd sick with cholera.
617	Hog house.
923	Hog house on experiment farm, Mitchell, Neb.
925	Interior of hog house on experiment farm, Mitchell, Neb.
633	Pigeons in herd sick with cholera.
644	Alley way between colony of portable hog houses.
643	Colony of portable hog houses.

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A MEMORANDUM for heads of offices, dated December 7, 1914, and signed by the Chief of Bureau, reads:

"In conformity with the present policy of the Department, which is adverse to salary increases on lump fund appropriations during the continuance of the financial conditions which have so seriously reduced the public revenues, the consideration of recommendations for lump fund promotions usually made prior to January 1, will be deferred until toward the end of the fiscal year. Heads of offices



19 December, 1914.

Memorandum (continued).

will therefore not be called upon for such recommendations at this time.

(Signed) Wm. A. Taylor,  
Chief of Bureau.

CORRECTION.

On page 222, Weekly Bulletin, December 12, 1914, an error occurs in the column "Preceding Crop, 1912". Plats 4, 14 and 16, Series I, and plat 1, Series II, are incorrectly shown to have been planted to potatoes, continuously cropped, during the year 1912. Correction should be made by penning out the second, third, fourth and fifth symbols "cc" occurring in this column.



26 December, 1914.

## WESTERN IRRIGATION AGRICULTURE.

## FIELD NOTES.

## Umatilla.

During the week ending December 12, the maximum temperature was 43, minimum temperature 5.

The following results were obtained from irrigation experiment No. 5, alfalfa, field B-I-b, 1914.

This experiment was planned to ascertain the frequency of irrigation best suited to light sandy soils and incidentally to find the optimum amount of water to apply for most economical crop production.

Each of the three plats in the experiment contained one-fifth of an acre. Plat A received water one in three weeks; plat B, once in two weeks, and plat C every week. The water was measured over a Cippoletti weir near the upper end of the field, and the applications were made with the view of giving thorough irrigations rather than applying any set amount of water.

Green weights of hay and calculated acre yield

Crop	Yield, pounds		
	A	B	C
First .....	1960	2370	2314
Second .....	1980	2395	2670
Third .....	1454	2032	2056
Fourth .....	810	1380	1534
Total.....	6204	8177	8574
Calculated Acre Yield.....	31020	40885	42870

Frequency of irrigation, amount of water applied,  
and yield per acre foot of water.

	A	B	C
Intervals of irrigation, in weeks.....	3	2	1
Number of applications..	8	13	24
Water applied (acre-ft.)	4.38	5.26	9.69
Yield per acre foot of water, green hay, Lbs..	7080	7770	4420





26 December, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes.

## Umatilla (continued).

The results tend to show that one irrigation in two weeks was sufficient for nominal crop production and that in the neighborhood of five acre-feet of water gave the best results.

It is interesting to note that plat B, irrigated once in two weeks, using 5.26 acre-feet for the season, produced 7770 lbs. of green hay per acre-foot per acre of water, while plat C was irrigated every week, received 9.69 acre-feet, and produced 4420 lbs. of green hay per acre foot of water.

This experiment bears out the point shown in the other experiments on this soil, namely, that frequent applications give the highest duty of water.

## Truckee-Carson.

During the week ending December 5, the maximum temperature was 53, minimum temperature 12, and precipitation .04 inch.

During the week ending December 12, the maximum temperature was 43, minimum temperature 19, and precipitation .01 inch.

The following report of the work covers the two-weeks period ending December 12.

The varieties of potatoes grown at A. R. Merritt's farm were hauled to the Experiment Farm and sorted ready for planting next spring.

Plats H1, 2, 3 and 10, which are to be used for pasture experiments next year, were reseeded. The alfalfa roots were raked into piles and hauled to the compost heap.

The leveling of the new ground west of field B and the laying of tile in field H was continued throughout the greater part of this period.

Variety tests in cooperation with farmers have been arranged for as follows:

F. E. Mobley.. One acre in varieties of mangels and beets.

A. R. Merritt.. Five acres of field corn.

Eight acres of wheat varieties.



26 December, 1914.

WESTERN IRRIGATION AGRICULTURE.  
Field Notes.

Truckee-Carson (continued).

Geo. Burton. Variety and fertilizer tests of onions.

S. B. Pray. Fodder corn, 1 acre.

L. W. Langford. Two acres of field peas.

Two acres of rape.

Three acres of fodder corn varieties.

Two acres of flax.

Arrangements have not yet been made for conducting variety tests of oats and barley.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

FIELD NOTES.

North Platte.

A two-page circular letter, entitled "Prevention and Destruction of Lice on Hogs", was mailed to the swine growers on the Project during the week. The letter calls attention to the damage done by hog lice, describes the preparation and use of various simple remedies, and emphasizes the desirability of keeping the hogs sleeping quarters clean as a means of preventing invasion of lice.

Mr. Jones has recently submitted a list of all the swine growers on the Project. The census was taken by the Reclamation Service and is intended to apply to conditions on November 1, 1914. The list includes the names of 516 farmers who had hogs on their farms on that date. No figures are available as to the number of swine growers in the Valley whose lands are under private canals, but it is known that the number of hogs on these lands is large.

In 1913, the Reclamation Service reported 908 farm units in operation on the Government Project. There has been little change in this number during the past year, so that it may be assumed that there are about 900 farms now in operation on the Project. On this basis, the 516 farms where hogs are now grown comprize about 57 percent of the total number of farms.





DEMONSTRATIONS ON RECLAMATION PROJECTS.  
Field Notes.

North Platte (continued).

A considerable number of hogs were shipped off the Project this year prior to Nov. 1, but the decrease caused in this way would be partly, or entirely, offset by increases in young pigs. The census shows that the 516 farmers on Nov. 1 had 22,309 hogs of all ages. This is equivalent to 25 head per farm, for 900 farms, and to 45 head per farm for the 516 farms where hogs are kept.

The table below gives the number of hogs in each of the 8 districts on the Project, the number of swine growers in each district, and also the number of farmers in each district who have herds of each of the 12 sizes specified. The last line in the table shows the percent of swine growers whose herds are of the sizes specified; for example, 26% of the 516 swine growers have fewer than 10 hogs in each of their herds, and 25% have more than 100 hogs per herd.

The table follows:

District	No. swine growers	Total No. of hogs	No. of farmers having herds of sizes specified											
			1 to 9	10 to 25	26 to 50	51 to 75	76 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	501 to 600	More than 600
Sunflower	84	2681	23	21	22	10	7	1	-	-	-	-	-	-
Dutch Flats	109	5996	20	23	25	12	12	13	3	-	-	1	-	-
Pleasant Valley	75	2283	23	25	13	5	7	1	-	1	-	-	-	-
Spotted Tail	36	1469	11	12	5	2	3	2	-	-	1	-	-	-
Sheep Creek	28	1298	7	8	6	1	2	2	1	1	-	-	-	-
Iowa Flats	26	1352	8	6	7	2	1	1	-	-	-	-	-	1
Third Lateral	109	4504	30	29	29	9	4	1	3	3	1	-	-	-
Dry Sheep Creek	49	2726	12	14	13	2	-	4	1	2	-	-	1	-
Entire Project	516	22309	134	138	120	43	36	25	8	7	2	1	1	1
Percent	100	-	26	26	22	8	7	5	2	2	1-	1-	1-	1-

From the above figures it has been calculated that: 2 percent of the swine growers average more than 200 hogs per herd; 4 percent, more than 150; 9 percent, more than 100; 16 percent, more than 75; 24 percent, more than 50; and 47 percent, more than 25 head.



26 December, 1914.

DEMONSTRATIONS ON RECLAMATION PROJECTS.

Arrangements have been made with the Office of Information, whereby the Department's Weekly News Letter to Crop Correspondents will be sent regularly to the field men in this office.



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(Western Irrigation Agriculture).

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